NATURE'S STORY OF THE YEAR

Charles A. Witchell

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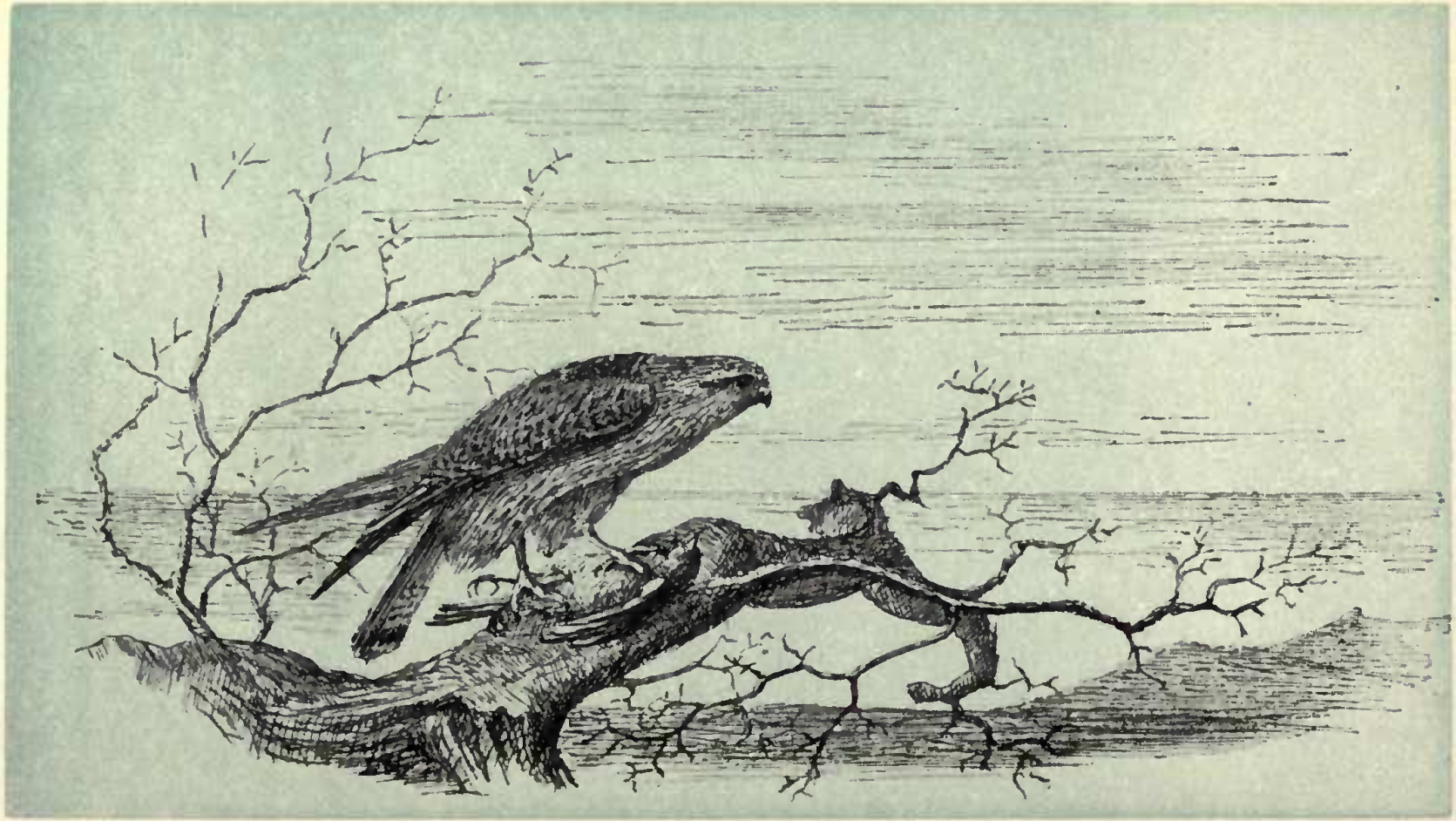

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NATURE'S STORY OF THE YEAR

BY

CHARLES A. WITCHELL

AUTHOR OF "THE EVOLUTION OF BIRD SONG,"
"THE CRIES AND CALLS OF WILD BIRDS," ETC., ETC.

ILLUSTRATED

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PREFACE

OBSERVERS of Nature generally belong to one of two classes—the scientific and the imaginative. If scientists, they refuse to consider any thesis not founded on a vast array of facts; and if poets, they may readily initiate a theory on too few data. These two classes are always in conflict with each other. The scientist despises the poet as a visionary; and is himself regarded by the adversary as a narrow-minded person.

The accurate classifier is of course highly commendable; but the propounder of mere theories is not to be despised, for he is drawing visionary maps of lines of thought along which the scientist may find it convenient to travel; he is like a

fruitful tree casting abroad its seeds, some of which, falling on good material, may by the aid of the scientist blossom into a tree of knowledge indeed. And in this connection it must be borne in mind that human research has not yet attained the limits of its opportunities: we have arranged the various orders of animals with some satisfaction to ourselves, but we have not yet mapped clearly their mental and moral horizons; and, though in any attempt to do so the data obtained must be scrutinised with all the severity of the scientist, the poet may well suggest the possible lines of investigation which might advantageously be adopted. Fact is the stone of science wherewith its temples are built; but imagination suggests where that stone may be found. This must be my apology for depicting some curious incidents in Nature in a frame of imaginative colouring.

I wish to acknowledge my indebtedness to my sister, Miss Lucy C. Witchell, for kindly contributing the frontispiece and the other drawings, except those signed by Mr. Neale. The photographs are from various sources.

CHARLES A. WITCHELL.

CHELTENHAM, 1904.

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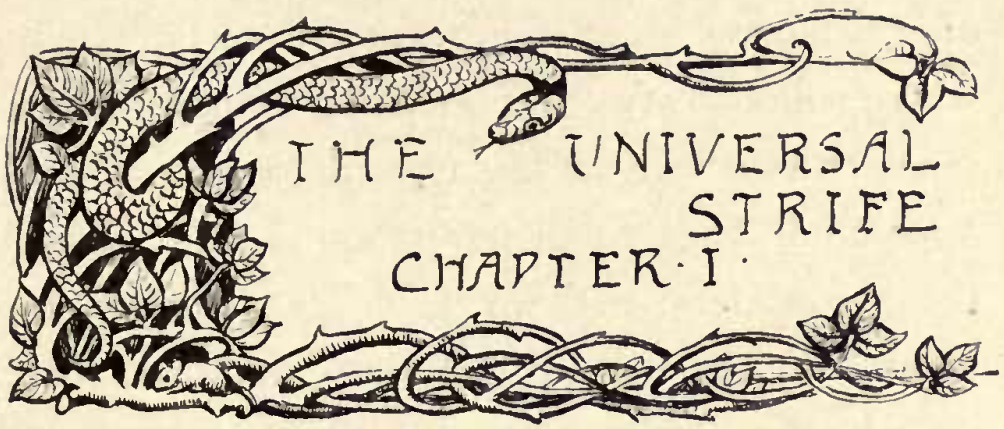

MAN, born in a world of perpetual contest and conquest, compelled to witness the ever-changing panorama of life—from the cradle to the grave—is by nature qualified to appreciate somewhat of that vaster strife which seems to rule the universe. It may be from this cause that he is so restless, so limitless in his aims and in his efforts to attain variety; but this temperament may have been, on the other hand, the great factor enabling man to rise so far above the brute in so many respects, and, perhaps, to sink below him in so many others. Yet, through it all, man ever cherishes an ideal of a changeless blessedness in

which restless variation will be stilled in content. The universe, however, provides no acceptable evidence of such a state in a material condition of existence; even the worlds themselves, "at whose immensity even soaring fancy stares," seem but to have their day, and to pass at their appointed speed to their appointed fate. But in these considerations we soon get out of our mental depth; we are like the moth that, living only long enough to find the sweetest burden of a flower, cannot foreknow the fruit of a later season; or like the meal-grub that, weaving fluffy tubes in the corn-bin, cannot think why grain is ground. Wearied by the ceaseless turmoil of existence, we dream of happy rest; but the world knows it not: the universe is a stranger to it. Change, ceaseless alteration, seems to be one of the fundamental facts of creation; ever in evidence, though often seemingly delayed, as through the eternities of the stars; and sometimes enforced with subtlety, as by those passive agencies that fade the leaves; or in the violence that strips a flower, or a forest, in the prime. To the higher forms of life it may bring deep pleasure or intense

pain; rest, or frenzied effort; while the helpless atoms, active or passive, are borne down the tide of life. None is free from the certainty of accident, and accident seemingly without purpose and dictated by a controlling power careless of any effect produced. The only care and kindness apparent to us must be found in the general averages, not in the fate of individuals. For of the last it is impossible to estimate the chances. Our sight, bewildered by the chaotic combat of Nature, may rest for a moment on some being that seems to be exactly in accord with its environment; but in that instant the creature may be snatched away to fill the maw of a stronger one. Meanwhile, some senseless parasite, whose only weapon of defence is a boundless fertility, will survive to torture a world. This law of the destruction of life that life may live is comprehensible, but the accident which seems to govern the application of the rule is beyond our comprehension. We can only stand awestruck before that

> "Mighty whirling wheel of strife and stress
> That none can stay or stem";

awestruck, indeed, but pitying the long tale of its victims, whose ceaseless cry is the music of its axletree.

But, though horrified at all the bloody tumult of the world, let us not shut our eyes and try to imagine that a different state of things exists, but rather ceaselessly search out the truest facts and the innermost laws that occasion it all; and, thus seeking, we may perchance gain some sense of the almighty hidden forces that govern the destiny of things; seeing a blend of colour where all seemed violent contrast, and hearing a harmony, though it be but faint, through the shrieking discord. The discovery may not yield us gold, it may not enable us to avoid one blow of fate; but if it merely render our leisure the more refreshing, it will not have been in vain, for it will thus strengthen us for the daily battle. And it is not in the bulkiest forms that we shall find the most important laws in operation, for in the realm of Nature nothing is trivial; indeed, man has himself achieved some of his most artistic or momentous triumphs by the aid of insignificant helpers in Nature's workshop. Aided by organisms

so small we cannot see them without artificial help, we combat fatal disease; and another minute slave is responsible for the incalculable effects of fermentation. With others, again, we are answering successfully the vital question of sewerage. From what seemed at one time mere profitless observation of Nature man has gleaned ideas which have yielded the triumphs of steam and electricity, and in the organic world watchfulness and thought have infinitely enriched us with endless variety and with profit. Comparatively few of us, however, seem to have the leisure, and fewer still the wish, to make any sort of investigation of the things of Nature, or even to notice what transpires in the world around us.

And no wonder! For even the briefest glance into that animate world, at almost any time of year, is sure to reveal some scene of tragedy, cruelty, horror; and the inanimate world is an endless record of shattering and grinding and distortion. The mind which has attained to kindliness is shocked by this revelation, and would fain discover some calm retreat. But in

our realm of Nature no such retreat exists—not even beneath the starry sky of midnight, when the wind seems dead. For out of the black nothingness flashes a meteor, flaming "lawless through the void," yet bursting and crumbling in its glory. The stars, those slow pendulums swung from the hand of God, may suggest a sense of peace and rest; yet they also are the media of opposing forces. Slight as is our knowledge of them, we are sure that they are subject to the twin (yet eternally conflicting) agencies of gravity and centrifugal force. Out of the blue nothing of our sky clouds are born to drench the earth, and from the deep steely mists the lightning stretches a vivid arm to rend the giant trees.

Probing the earth, we find evidence of past convulsions that wrinkled and fretted the surface of the globe, even to the extent of upheaving whole formations hundreds of feet in thickness, and making them overlap like sheets of paper jostled on a table. There are the ashes of fires that reared mountains in the molten vomit of volcanoes. And, when the dead world reveals a

record of so much violence, we must not be surprised if in the living world war prevails, though peace may be desired. Even the placid stream, stealing softly through its sedges, deep and tranquil itself, provides a vortex of strife, where every summer day millions are born but to fight and die.

And the stream itself has wrought violence. High up in the hills it was born, racing out into the day, careless, violent, and irrepressible. It fretted the gravel, every grain of which bears marks of rough usage, bruises and abrasions, which have worn it almost out of recognition. The original form of the fragment has been lost in the endless stress of the water. The stone, dislodged from the face of a rock long ages ago (by frost or by the crashing descent of a larger mass), lay for ages in a loamy bed, and as each successive year threw its green mantle above, so surely was that garment left to wither and add a film to the deepening coverlid of mould. Meanwhile, water began to ooze from the spot, and every drop that passed rendered easier the transit of its successors. The million other drops

that oozed along the clay-bank of the hill found less easy courses. Here the channel deepened rapidly, the area of supply as quickly widened, and the lighter particles of soil having been borne away, the water began to move the larger stones. Each fragment within the growing power of the stream was seized, torn from its bed, flung this way and that, rolled over multitudes of smaller nuggets under multitudes of larger ones. Soon the crude characters of the fragment vanished, as, amongst ourselves, the stress of a toilsome life will obliterate individual qualities and tastes. But as the pebble retains within its true geological nature, so we retain through every change of life some trace of the experiences of childhood. Some of us remain in our loam for life, but the majority have to become as pebbles or as grains of sand, worn and chipped and ground into the commonplace, hurrying along the course of life's river, and fortunate if unshattered by a plunge down some unsuspected precipice.

The rivulet, effectively draining its ever-widening basin, was not the only leak of the watershed; presently it met another stream, a rival miner,

porter, and singer, and at the point of meeting a contest occurred. There was a disturbance in the waters, and a surging like that of opposing hostile crowds of people; the rival currents of water strove each to be first in the race along a

THE HURRYING STREAM.

wider path. They seemed to jostle each other intentionally, pushing and recoiling, then, clasped in a whirlpool, reeling like exhausted wrestlers, and, sinking helpless, grasping for aid the flotsam and jetsam of the stream and dragging it with

them. Perpetual reinforcements rushing from higher reaches continued the contest, but with always the same result; the weaker rivulet, however boisterously it may have laughed from ferny ledges, only leaped into a grave. It might be said literally to feed the rival in which it is merged, for nutrition is but little more than absorption.

The violence of the stream is suggested by its voice, which is a babel. In the distance the sounds blend to a soothing strain, but near they are a boisterous chorus, a wrangle of waterfalls. Some of the voices in this hurly-burly are sweet, but they may be lost in the roar of an arching jet which leaps from a high barrier, a crush of twigs and leaves, a ledge of rock, or perchance from some crumpled old tin canister which once contained charges for a gun, or bait for the trout whose young now sometimes pause in the hollow below it.

Often its greatest strife is caused by the narrowing of the course of the stream where it plunges down a fall into the shade and sends forth a roar—no merry trills and doubles like those sung from easy gradients, but hisses and rough shouts, almost

resembling the cries of savage men. Here the little pebbles are most severely battered, for here the water strikes them hardest against the rocky walls as it slowly chips out a wider way. The burden of the flood, however, is not restricted to the *débris* of rocks. It bears onward other relics—skeletons of leaves, rotted twigs, insects of many kinds, the writhing leech, the drowning moth: all are hurried along, or are crowded and pressed into the frequent bars that silt up across the course of the stream. The noise is ceaseless, and seems to vaunt the eternal activity and power of the water. Did we not long ago put this to the test? Did we never try to stop a rill? We tilted a great stone into its narrow gorge. It was only delayed for a moment. Little currents seemed to turn back from the obstacle to tell the news up stream. The water began to mount. We pushed stones, sticks, turves—anything at hand—down on the rock, and made a solid barrier. But the stream rose as quickly. Little jets began to peep down, and when we turned aside, discomfited, a hundred brook-voices laughed from the rough projections, while all the softer materials were dissolved and whirled away.

What is the purpose of this ceaseless babbling stream? The dip whence it comes proves that though it trickles clear it bleeds the heart of its parent. By boiling the water we discover its unseen burden, to the extent of some twenty-two grains of soluble matter per gallon. If we credit the streams with the removal of a third of the rainfall (a moderate estimate) they would give the figure of two hundred tons of dissolved materials per square mile, removed by them every year. To this calculation must be added the amount of the organic matter carried by the water; and we then have an indication how valleys have been shaped, if not wholly formed.

The watery vapours rise pure and empty from the sea. They pass over the land, and the liquid falls—

> "To trickle down the hills, and glide again,
> Having no pause or peace."

But when it passes in rivers to the sea, it is saturated with the burden of dissolved matters. Thus the sea, for ever pouring upon the land a vapoury tide, and for ever receiving from it an enormous

amount of matter in solution, in addition to all the muddy suspended substances that dull the streams, is for ever making a subtle attack on the land. Along the shores the onset is delivered with open violence. Here the forces of gravity and tidal action cause an endless contest, which is increased to frenzy by storms that buffet the water and shriek on the rocky shores. The agitation of the great surface of the deep is then awfully apparent. There is a tossing of waves like shackled arms that can threaten but not strike; while the wind flings them this way and that, raises them and hurls them down, wanton child that she is, seeming to rejoice in destruction. From the land it seems that the sea is then trying to escape from her prison. She seems to be rising from her eternal bed, when she thunders against the rocky shore. But the rigid walls repel the attempt. Yet she returns to them again and again, grovelling below them, with moaning lamentation. They are drenched with the silvery tears. It is the shattered hands of water that beat against them. But all in vain. Then the water is also springing far up the pebbly beach; but the battered frag-

ments afford no shelter to the disturber, though some are dragged into deeper water. Where the slope is gradual, white arrays charge up the smooth sands, each with equal velocity, and each with equal failure. The long waves seek out every

WHITE ARRAYS CHARGE UP THE SANDS.

hollow; but the rush changes to a glide, and at last fades backward down the slope. Yet all this strife is not quite vain: a few fragments are chipped from the rocks; a few pebbles are crushed; a little sand is wafted on the changing tide. Thus the sea gathers down

a little more of the land, and enlarges her boundaries.

All this violence on the shores, all the inland torrent of rain, however, probably produces but a small effect as compared with that of a more subtle agent—the frost, which strikes with sword and dagger at once for the water, and levers out of balance ponderous masses of rock that even the lightning could not dislodge. Silent, seemingly without motion, the frost inserts a slender weapon between the rocks, and thrusts them asunder. When hard weather arrives, there is no change in the appearance of a cliff, save that the boulders are stippled with white; the masses are, indeed, more firmly bound together by the ice, as with a crystal cement, though an expanding one. But the thaw alters the scene. Then countless chips of stone and fragments of mould fall from the face of every rocky steep; and at intervals a boulder crashes down. The record of this chipping in past ages may be found in the great beds of angular gravels, countless chips from exposed rocks, and not yet waterworn.

The war of the elements is felt everywhere.

Storms batter every leaf, and strain each tree. They press the grasses to the ground whence they sprang, and dabble the flags of young corn in the

A WIND-TWISTED TREE.

mud. Solitary trees, especially those of the wide-branched kinds, attest the strain to which they are subjected, and are twisted by the prevailing winds, which strike the most against the south-

ward and longest branches. The force that can thus affect a great tree stem and make it grow awry must be vast and continuous ; but sharper is the violence which uproots a giant elm, or tears off its branches.

Vegetation, however, strives not only with the elements, but with itself. Plants are ready combatants. From dark recesses they crowd towards the light. The greatest share of this is gained by the strongest, or the most rapid in growth, which increases the fatal shade upon its neighbours. Each meadow is a battlefield, not only for active insects and higher animals, but even for the passive grasses, which obstruct each other. The brightest blossoms in woodland glades exhale odours or spread their glories in unconscious competition for the presence of necessary insects. The sweetest herbs on sloping banks contest the possession of clumps of tree-roots retaining a wealth of rich mould ; or, by means of the annual casting of seeds, they outstrip each other in races for the new clearings. There is the flush of rivalry in their beauty, the poison of jealousy in their stores of honey. The battle

of the plants is important to the seed-eating birds, who conquer the victors.

But it is not in any particular region of creation that this strife prevails. Everywhere, and throughout the circling years, the same incidents are repeated, by the same or similar agents, and in forms so numberless that to observe even a small proportion of them is beyond the power of any single person, who can only notice minutely a few individual existences and must generalise as to the remainder. Happy is he who can perceive through this tumult some sign of the harmony of primal energies, or draw some sweets from the surrounding ferment of life and death, or detect through the roar of the universal battle some concordant strain. The sign of such a harmony is not denied to the willing observer. The dull plant or tree, even, whose slow, dim purpose occupies a whole summer, or a century, in fulfilment, writes in glowing hues other messages than those of rivalry and ill-will, or whispers them from laden branches. The wishes of these simpler forms of life are not perceptible in a moment. Place something in the ground to nourish these

growths, and weeks or months may elapse before the long inquisitive rootlets discover it. Cattle and other herbivorous mammals partake of proffered greenstuff much quicker; but even these are slow as compared with the lightning-like movement of some hungry predacious beast when the immediate chance of catching prey is perceived. The plant, therefore, only reveals its inclinations comparatively slowly; yet these may not the less be imaginable, even by man. Is the blossom all a challenge to rivals, or entirely an allurement for insects? Does it tell of yet another emotion? When its face is raised toward the supreme source of all its effort to be beautiful, and, while absorbing the golden rays, it opens its heart to sight, more and more, until the very core is revealed, does it not remind us of the growth of love for what has seemed glorious and inspiring, in the human heart? And again, when the sun has poured its rays into that hungry heart of the flower, until it was content, and the merchant bees have made their subtle exchanges of yellow dust; when the blossom sheds its finery, and throws the arms of the involucre around the core, to guard it

from external foes, do we not trace here a sign of the loving sacrifice that ennobles the nest of higher forms of life? For, deep within the shelter of those arms, minute, yet virile, lies the wondrous microscopic "cell" which embodies all the potentialities of the parent plant, whose floral beauty it may perpetuate in succeeding generations. Closely is it guarded, until the mother-bloom has provided it with hardy armature, and, in her own death, commits it in safety to the rugged bosom of the ground.

The birds, again, ferocious or cruel as many of them are when attacking their prey, yet afford suggestions of some calm depth of love underlying all the hateful tumult of the surface. Without considering those passionate moments when the influence of sex inspires the greatest fervour of artistic song, the utmost extravagance of courtship, one may gather from them at other periods of the year evidence of friendly association and sedate companionship, healthful for man to remember. These signs of constant yet unobtrusive love, equally with the thrilling notes of the most musical birds; the soft aroma of the glowing

flower; the upraised arms of giant trees; even the thin green vesture of barren hills—all are components in the one great terrestrial response to solar vibrations; the endless song of life; the song of the earth to the sun.

THE COURTSHIP OF THE SKYLARK.

CHAPTER II

SIGNS OF SPRING

DURING January there is no life in the woodland carpet, no vigour in the twigs that spread a tangled tracery against the sky; there is no blossom on the drooping hedge-plant. Among the trees all is still, and cold, and dead, and the air is heavy with the reek of decay. The

sun barely pierces the mists, and early disappears. When fog lifts, rain falls; and meanwhile the leaves lie rotting. Yet man knows that a new year has commenced, and the birds are equally conscious of the fact. Their early proclamations, however, are not emphatic. A prolonged chirrup from the lark, a few more repetitions from the nuthatch, a little more melody from a robin warming in a quiet nook where the sun fires the jewelled dew on herb and fern—this is all we hear. The robin, seemingly the most observant, is appropriately the most musical of these singers. He has been along the hedgerows, and has seen the gnats dancing merrily. He interrupted their game, though adopting for this purpose the manners of a flycatcher. He has watched the caterpillar creeping out of its winter retreat—a soft, fat grub, lethargic, cold, but plump—and he ate it. He has seen the molehill rising weirdly through the dead leaves; observed the fresh-made tunnel of the mouse; and perceived, far down in decayed vegetation, young leaves thrusting pale points upward from the soil. Early in the morning, and at evening, in mild weather, the beetles boomed and

buzzed across the land, or hurtled through the tall grass-stalks beside country roads. He has heard the stream in the valley roar louder, swelled by warm rains. So he sings.

In the fields a host of vegetable forms arises. Even the grasses are full of vigour, and every clump of the stronger kinds protects itself with an array of sharp spiny leaves like little spears, which boldly face the weather, and even receive the onset of the hail without breaking. The young corn waves its flags, even through the chill north-easter, and triumphs over the hoarfrost, which vanishes in sunshine, and hides in the shade of plants and scattered stones. But the sun, gradually moving across the sky, sees around the edge of the shelter, and destroys the enemy.

In the country the change of season is foretold in the caligraphy of Nature, and in sounds which are repeated year by year with much the same variations of tone and emphasis. Several of these incidents are liable to alter in time of occurrence or in duration. A change of weather may open flowers too soon, or may ruin autumn splendours; it may excite birds to song in December, or silence

them in March; and it is commonly admitted that birds are particularly susceptible to the influence of weather, at least as regards their songs. It may bring bees to early flowers, or the death of frost. But the sun's progress is not changed, however closely it may sometimes be veiled. There is expectation in the rosy glow of morning, and a fiery promise is written each evening in the western sky.

But of all the signs of approaching spring, none is more suggestive than the hot breath which is exhaled at evening from banks on which the sun has been shining. It is sweet, warm, embracing; nicer than the faint whiff of a field-fire or the last blue wreath from smouldering wayside grasses. It seems to be the very odour of Nature's garden: something to be cherished in deep breaths.

Solar heat penetrates the soil, and arouses the hybernating creatures. Under the edges of coping-stones, in niches in walls, in stacks of dry wood, or in mould at the northern side of meadow trees, may these creatures most commonly be found. The insects there are not all of them adult, for many are merely grubs or larvæ; but all are still

and silent, lying like dead things, yet awaiting only warmth to be endowed with quick perceptions, prodigious strength, and violent instincts. Mere natural cold does not hurt the lesser forms; indeed, some may be frozen into brittleness, and yet afterwards, if slowly thawed, be none the worse. A humble-bee or a wasp, white with frost, and so stiff that it may be rolled about, seems a strange object to be alive and well. But more wonderful is the wintry death-in-life of the quick and intelligent lizard. He, so active in summer, now lies asleep in his burrow, inert, and at the mercy of any subterranean beast or insect; but when warmth returns he awakes, crawls out into the glow, and basks. Impressive, too, though insignificant, is the silent community of ants, now revealed by the spade. There they rest motionless, crowded closely, and sharing the common peril and the common hope even more unitedly than they face death, or enjoy a feast in summer. This helpless mass, as powerless as a fallen leaf to avert further disaster, yet retains, though in abeyance, the amazing intelligence, the ceaseless industry, the priceless devotion to the common

good, and the heroic readiness to die for all, which ennoble the ant above all creatures, save, perhaps, the honey-bee.

Beneath the rotting vegetation which clothes the tree-roots, only the record of death might be anticipated; yet from this reek will the springtime resurrection ascend. The moth will emerge from the moist fragments to dry her new-born wings upon a sloping stem; the beetle will march through them, unspotted by the slime; and, in sunshine, the snake and slowworm will peep with bright eyes from the drying leaves before stealing out into the glade. Here the great wood-ants will rustle and tick while wandering, and the lizard will scatter the crisp litter when he darts upon his prey. The birds seem to anticipate all this, and select their future homes. In dry meadows the daisy has bared its bosom to the sun. The daffodil is preparing that slender spear, whose rounded tip will one day burst into a golden flower. The tide of life, at ebb in the frost, is returning to the flow, and with the renewal of warm weather its waves will seethe along the hedgerows.

Many of our wild mammals seem not to sleep more in winter than in summer. The mice and voles and the weasel tribe are practically as active in one season as in the other; and the squirrel and hedgehog, though popularly supposed to be dormant throughout the cold period, are sometimes abroad, even when the ground is frozen; and then, as at other times in winter, the former may be seen busying itself amid the white seed-heads of wild clematis, and the latter may be heard rustling the thickest-laid leaves in a search for insects, or, at evening, wandering openly in a wood. But when warmer weather arrives they certainly become more often visible. On sunny days the shrew may be heard squeaking shrilly as it hurries terrified to its hole, and the meadow vole (short-tailed field-mouse) may be seen rambling in the litter of the hedge, seeking now soft fruits of sycamore or ash, which were overlooked in the abundance of autumn.

The notes of birds, however, suggest most frequently the signs of spring. The wren mounts to the topmost twig of every stack of dead wood in which he has been hunting for food, and utters a

brief but energetic song. The nuthatch begins to utter those simple, single, loud, full notes which distinguish him throughout the spring. Finches are more garrulous than ever, and even the wagtails, though perchance solitary, utter their call-notes as if to make of these a song. The lark, when on the wing, is continually employing a short purring call, repeating it so that sometimes a short snatch of song is produced; and, in addition, his full song is often given.

In the night other bird-voices proclaim the advent of spring, for the larger migrants, ducks and other water-fowl, are continually calling to each other as they traverse the dark landscape. Much smaller, but more frequent, the redwing may be heard uttering its soft and plaintive whisper, "syou," as it drifts across the sky. But the numbers of all the spring migrants are much less than those of the autumnal passengers, for man has taken toll of them in half a dozen countries. Traps, decoys in which multitudes were engulphed, springes, birdlime, sulphur fumes, and other means of death, have been employed, not only for man to obtain tasty morsels of food, but in order that

woman may bedeck herself with tatters from the plumage of the slain.

From the black sky of midnight we hear the frequent outcry of migrating ducks, which seem to guide each other by means of such admonitions. The troups of these birds are often delayed over gaslit towns, probably because of the younger birds being attracted by the lights; but no long stay is made. I remember seeing in broad daylight a couple of swans flying high, and apparently mistaking an array of glass in a nursery garden for water, towards which they made a long and graceful descent with drooping wings, only to suddenly rise again, however, when quite near the glass, from which the rays of the sun were no doubt attractively reflected. No wonder, then, that to a tired, wandering seabird the busy lights of an inland town may suggest the idea of a harbour with comfort and the sea near by. But birds of the waters are not the only ones coming to us. Far beyond the sea, in countries sunnier than our own, legions of feathered songsters are toiling night and day on the northward journey to our waking woods. They are darting up the passes of

mountain ranges, through pathless forests, over rivers and deserts, undeterred by the hawk, owl, and other marauders that decimate them. Nor are we without song, for robin, thrush, and blackbird are incessant. But the lark is the more passionate, when he soars as though sustained by the very flood of music that he creates. Who shall understand him? The schoolboy who loves him and the eggs in his nest, the shepherd intent on toil, or the little brown bird running along the furrow, with raised crest and alert demeanour, anon looking up at the singer, anon tasting the sweetmeats of the field? She alone can interpret all the marvellous inflections in that song. No human being can sing so joyously. And when shall we fly? We may expend much toil and thought to attain the gratifying liberty of a yacht, or the ungoverned buoyancy of a balloon, but the lark is freer when he climbs the breeze, and safer when he descends with folded wings like a hawk, singing meanwhile what may well be a triumph-note.

And no sign of spring is prettier than the wooing of a skylark by her mate. For she

seems to be won as much by wing as by voice. It is true that her lover constantly addresses her with sweet tones; but he also swoops gracefully at or near her; and she, unable to sing volubly, answers in the poetry of beautiful flight. So the birds flirt in the air, swooping, pouncing, sometimes approaching and seeming almost to clasp each other with the feet; and sometimes even alighting on a hedge or in a tree, only to spring off again and resume their pretty fooling. And when, tired, she descends to the ground, he hovers over her and seems to pour out his gladness in song.

The vocal signs of love in wren, thrush, and lark, are signs of spring; and about February or March the same passion in the kestrel hawk gives the same indication, though not quite in the same manner. This bird has a voice clear and far-reaching; but he knows nothing of song, and has not yet advanced beyond the mere repetition of a not unpleasant call-note. How shall he woo? Shall he dance like a plover, strut like a pigeon, or crow like a fowl on a midden? A lord of the air can do neither. He woos with his wing.

From the barren top of some lone and aged tree he may have seen on the horizon a floating speck, far beyond the range of human sight, yet clear enough to him; and with a ringing

UP AND UP THEY GO.

cry he springs aloft. A minute later he is near the bird he saw, and displaying his pretty plumage by many a soar, and his strength by many a pretended stoop, while again his call-note cuts the air. The object of these efforts notices

them, answers the call, and, avoiding with a half-stroke of wing the pretended blow, swings up to the fateful higher poise, and in the like playfulness threatens her suitor with the falcon death. Thus occupied, the two birds forget that in fields below them the sunshine has brought the vole to the mouth of his burrow, to sleek his fur in the warmth; they no longer dread the keeper's gun. Up and up they go, alone in the blue vault, while, maybe, the labourer below, munching his crust under a hedge, sighs as he watches their freedom.

The call of spring is heard not only along the land, it echoes through the reeking dead leaves; farther yet, in the soaked ground; in mud as in mould; where creatures are aroused from the oblivion that saved them from the cold. Forth from damp seclusion come the toad and frog, making slowly for the nearest piece of water, on whose banks their voices will unite in dolorous chant. The toads are the more noisy, and their high-toned "work-work" may be heard from every horse-pond. Frogs are less often seen and heard at this season;

and their low, purring croak (almost resembling the noise made by a train of bubbles escaping from mud) is generally heard only at evening from a ditch or pool. A fit companion for these creatures is the newt, a lizard-like amphibian,

A BRITISH NEWT.

with a moist skin and no claws; a feeble thing, and yet one able to climb a smooth, inclined surface, such as that of glass or china, where a lizard could not rise from the ground. Superstition yet alleges that the newt is poisonous; and, indeed

one common species (the large black one) is said to hold an irritant poison in the vesicles in its skin; for which reason, apparently, my captive snakes would hardly ever swallow one, though they sometimes held one in the mouth.

The weather is apt to discourage the early newt and to gratify the sluggards of the race; for often the first to awake in spring and to enter the accustomed pond are drowned owing to the freezing of the surface of the water, so that the poor things, coming up for a gulp of fresh air, as is the habit of the animal, find none; while later, the lazier newts are in no danger of this kind.

The loves of the newt are not quite so pretty or poetical as those of the lark. The male swims in front of the female, turns, and thrusts his ugly visage close to hers, and stares at her. She looks not only ugly, but stupid and indifferent also; while he at least has a somewhat eager demeanour. Gazing intently all the while, he bends forward his fan-like tail and waves it along his side, thereby causing a current of water to pass from him to her. And, doing that, he is quite happy, or as

much so as he can be. He is, at any rate, content. But she does not seem to care much about it, and soon moves off, only to be again pursued as eagerly as before, and with the same resulting performance. Often three or four males will fan their tails at the same female, who, however, does not appear to be highly gratified thereby.

Another curious feature in the organisation of the newt is its power, in common with that of frog and toad, to reproduce parts which have been accidentally removed. Experiment has proved that not only will amputated legs thus be renewed, but also the tail, and even the lower jaw. I have only seen one limb reproduced. This was a foreleg, accidentally cut off when the creature was captured. Some two weeks later five little points appeared on the wounded shoulder; they increased in size, and ultimately became a complete foot, which grew on a sort of stalk, that finally became a serviceable limb.

To the suburban gardener one of the most certain signs of spring, and a vexing one, is the arrival of the bullfinch. Throughout summer and winter this bird keeps to the hedges and coverts,

often at a distance from any house ; but in autumn he will be sure to know if there are any desirable seeds on the garden plants. From January to March, however, he is certain to arrive, for he knows, quite as well as we do, what time the buds of pear and gooseberry begin to swell ; and at this period he is the very worst enemy of bush-fruit. He generally arrives early in the morning or late at evening, and settles quietly for a feast. Year by year he will come to the same trees, and at the same period, and if undisturbed will sometimes so strip the twigs that whole branches are killed.

I know a fine pear-tree in a town. It bears well. But the bullfinches come to it every year, and prevent several of the branches from bearing. The path beneath is strewed with the hulls of buds. I went out one day with a little gun to slay the culprit. He was busy, and I made a stealthy approach. There was a slight report. The bird rose, but settled immediately in a currant bush, leaving one soft feather floating above. The cartridge having jammed, I retired for a couple of minutes to put it right, the bird then panting visibly. On the return he could not be seen, but

two hedge-sparrows were moving suspiciously under the bush in which he had perched. They were evidently looking at something which seemed to alarm them. It was the bullfinch sitting in the midst of dead leaves on the ground. No need to fire again. Yet the bird, seeing the enemy approach, attempted to rise. There was only a feeble flutter of the wings. At the distance of three yards the breathing could be heard, and all the pretty colours were visible—the jetty head, bright red on the breast, slaty grey on the back. Unable to fly, he cowered down, and as I further approached he tried not to breathe at all, in order to escape detection. Should he be shot again, or left to die? He seemed to answer the query, for he crept into the darkest shadow of the bush, looked all around, and nestled down as though choosing that spot for the end. Suddenly he began to struggle violently, attempted to rise on his feet, shuffled along for half a yard, then fell helpless. He panted for a little, and then was still.

Was this too cruel? Let those reply who know the bullfinch in his wild haunt, in shady thicket, on

lank arms of wild clematis, among seedy weeds in the field; when in full notes he breathes contentment through the music of spring, adding a rich tone to the chorus; when he leads his young abroad.

As I lifted him from the damp leaves, the sharp cry of a bullfinch rang out behind me. It was his mate.

THE PENALTY.

CHAPTER III

APRIL DAYS

APRIL gives a warmer promise than that of spring; it foretells the awakening of summer. Buds are opening; early nestlings take their first flight; all the world is singing. The very brooklets sound musical and merry. From dark crevices the hybernating creatures come forth; companies of skilled workers—borers, excavators scavengers—all are busy. Vigorous young grubs set out on a march around leaves that not one in a hundred of them will survive. The woods are daily more populous with insect life, and the lanes are astir with murmuring crowds. It is doubly unfortunate that now, when the life of every animal is so important in relation to the perpetuation of its species, the rising generation of human kind is

so strongly addicted to the destruction of pretty creatures. Boys hunt early butterflies, and thus exterminate locally some of the most beautiful and harmless of insects. Others pelt squirrels from tree to tree, or rob birds' nests. Girls do not hesitate to gather from the plant the immature object of its existence—its flower. It seems that children should not only be taught Nature's laws, but proprietary rights, which are frequently violated under the excuse of a love for Nature. Oh that we could exterminate the exterminator, the collector! To be a naturalist one needs not, surely, a museum; nor, to love the beautiful, baskets of other people's flowers! For how much longer will the woodland trespasser be permitted to steal eggs, or butterflies, or rare plants, without fear of a summons, a fine, or a birch?

There is a hedgerow I well know, where snowdrops bloomed so abundantly that the ground was white with them, as though winter had been delayed beneath the brambles. One morning, at dawn, some men arrived with a cart from a fashionable town nearly twenty miles distant, and took every root of the flowers. In the same

A SUNNY APRIL SCENE.

district is a wood called "Lily Wood," but the name is now an empty title, for people who had access to the spot dug up the abundant lilies. Not far away is another wood, of large size, certain parts of which were almost carpeted by primroses; but the flowers are now comparatively few and far between.

When will the so-called lover of birds be restrained from fatal methods of showing his affection? When you have toiled for a year in the grimy city, helping to turn the commercial wheels of the world, but looking forward through the mist of work to a peaceful holiday in your old country home, it is exasperating to find that all the fairest tenants of the shade have been evicted or destroyed by some idle fellow whose leisure was only occupied by the pursuit of them, though he can, perchance, point to a group of mummies in a glass case as trophies of research. In London people have learned to look upon wild birds without exhibiting the tendencies of a cat.

Winter visitors to St. James's Park can enjoy one of the greatest treats a lover of birds could desire—to stand on an eminence and see scores of

gulls, of many species, flying near; not scared aloft, but circling around and below, even within a yard of him, and all for the sake of a morsel or two of cheap fish thrown to them. There is nothing in Nature more lovely than the exhibition of their great wing-power when they come swinging along, with sleek, wide pinions pulsating evenly, stainless, symmetrical, harmoniously coloured. You can read the hope in their eyes when approaching, and detect the triumph with which they bear off some fragment deftly seized in mid-air. When will the village green have learned the true secret of beauty in the city park? And when will the country brand as a criminal the villain who goes to the seaside for the "shore-shooting" of harmless—nay, beneficent and lovely seabirds? Perhaps, in the good time coming, some very exalted personage will by word or sign set a fashion that will convince people of the detestableness of wantonly killing beautiful animals. And perhaps civilised woman will one day abandon the use of the savage's headgear?

At this season no miser can ask for a cheaper entertainment, nor physician for one more health-

ful, than the countryside affords when clothed with the soft mists of morning, noisy with bird-music, or fading into the stillness of night. And in the holy temples of the hills, in the vocal aisles of the woods, is there not also a suggestion of reverence for the Originator of it all, though this take but the form of prostration before the sun? The boy whose heart is already dead in knowledge can hardly be expected to assent to this; but some glorious maid, whom beauty has moulded and decked for the triumph of truth and kindliness, whose eye is not watchful for defect, and whose waist is not strangled for fashion, may feel that it is a fact. What matter whether she come from the manor-house or from the cottage? Let her conquer with vigorous step the steep slope, and rest victorious at the summit, to rejoice in the glory of the spring flowers and the music of the birds, from that of the robin coming near to watch her to that of the soulful lark.

Nature tells strange tales of life and death in animal, and in man, the lord of animals. She whispers as well echoes of the past, and hints of the future. We may read long legends from frag-

ments of flint weapons with which our ancestors, a hundred generations ago, slew enemies, or scraped skins. The brown arable fields bear annually a crop of these relics, which are turned up by the plough, washed by winter rains, and left all the spring ungathered amongst the *débris* of common rocks. Within many a solitary upland mound of earth are traces of the crematorial fires through which the ancients paid the great debt to the world—fires that still smoulder, and give promise of once more spreading around the globe. Those sun-taught savages seem to have been wiser in this matter than their cultured descendants whose dead are withheld in treasured vaults. And while the guardians of these childish historians of the dead pause to drop the annual chaplet, they too are treading the same easy path. A brief space of time, and their very names will have rotted from the stony witnesses to their existence. A little chiselling by frost, the growth of a wisp of greenery, and the ground will be smooth again, rearing its fresh wreaths of flowers where once the pitiful chaplet was laid by the tearful mourner.

Let us try to perpetuate our names by rational

means, not by the horrors of the coffin. The dead should not be buried, but, by means of fire, be dissolved and purified, and thus be yielded to Nature. The "viewless winds" should be the last resting-place for human dust, the wide vault of the sky its final sepulchre, despite the art that would delay the last change of condition, sealing down in metal that which must be distributed over the surface of the earth, and carried far into space.

It is not unpleasant to know that when this dissolution shall be complete what is now ourselves will enter into the constitution of the beautiful things on the earth. Thus shall the aching heart and weary limbs feed the passionless endurance of an oak; a lovely face shall live again in the matchless colouring of some flower, sought by toiling insects and dainty butterflies. Such changes are now occurring. Our very breath passes to expectant leaves that hunger for its load of carbonic acid. A sigh becomes the song of a bird, or the hum of insect wings. It is, of course, impossible that we can ever experience a consciousness extended proportionately with our physical distribution; but, were it possible, what consolations

might the thought suggest? Miserable miner, thou shalt one day go aloft on the wings of the swift, or, like a seagull, bore unharmed through the sulphury strata of a thundercloud! Weary workers, ye may have the beetle's strength, or enjoy the leisure of the lizard. Prisoner, thou mayest view the glories that the lark surveys! The dumb shall pour their music in the song of the nightingale, and the dead ear shall drink in the chorus of spring! Poor human ant, thou mayest rise on golden wings to consort with the butterfly!

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April, month of the primrose, bluebell, and anemone, of the first cuckoo and swallow, brings also certain forms of life which most of us regard with aversion: it awakens the reptiles from their winter sleep. These creatures have always seemed to the populace to be embodiments of pain and of death, and of danger all the more terrifying because its approach is liable to be unperceived. However true such symbolism may be in respect to the more potent tropical reptiles, it is hardly applicable to such members of the race as are found in Britain. We have but one that can be

called aggressively venomous, and that one, the viper, is aggressive only when attacked.

These timid descendants of former lords of the world, now persecuted by numerous stronger creatures, condemned mostly to flee for shelter within the bosom of mother earth, who bore them long ago, have not in recent times enjoyed the opportunity for that association which is so powerful a factor in the development of the mental faculties. Man has destroyed them, too hastily, as being things hurtful to himself, though they have provided at least a valuable means of illustrating Nature's methods. And certain reptiles have been found amenable, almost affectionate, by persons patient enough to win their confidence. In one feature reptiles seem to excel other creatures as pets—their trustfulness. The dog may be too eager in its own interest to return a caress, or may lick one unpleasantly; the pet bird must generally be coaxed; but many a reptile will repose on the hand, glad of the genial warmth. The lizard will lie on your palm, though the sun does not shine. The blindworm or a snake will coil comfortably around the wrist. Dread is not the only feeling

to be aroused by a serpent gliding from its cage to the accustomed hand, nor by its weight when lying cosily in the sleeve. To cast aside a harmless, useful creature, which would cling to us as though it loved us, seems ungentle.

The memory of a pet lizard, which used to sun itself on my infant hand, suggests regret that the mental capacity of that reptile has never been gauged, though the biological position of the saurian is defined in many a text-book. The poor thing has hitherto furnished only its dead body for scientific investigation. The artist of science has picked to pieces the canvas from which the living picture had been removed; the mechanic has described a powerless engine; the chemist, with bottle of poison, has perpetrated a libel on Nature, more barbarous than that in the bundles of skin and feathers sold as birds by village taxidermists. Science is too often limited to the study of physical processes. The proper place for the study of reptiles is not necessarily a museum, in which they have been hanged in jars, like some sort of saurian malefactors, preserved to warn the wicked; but it is among more

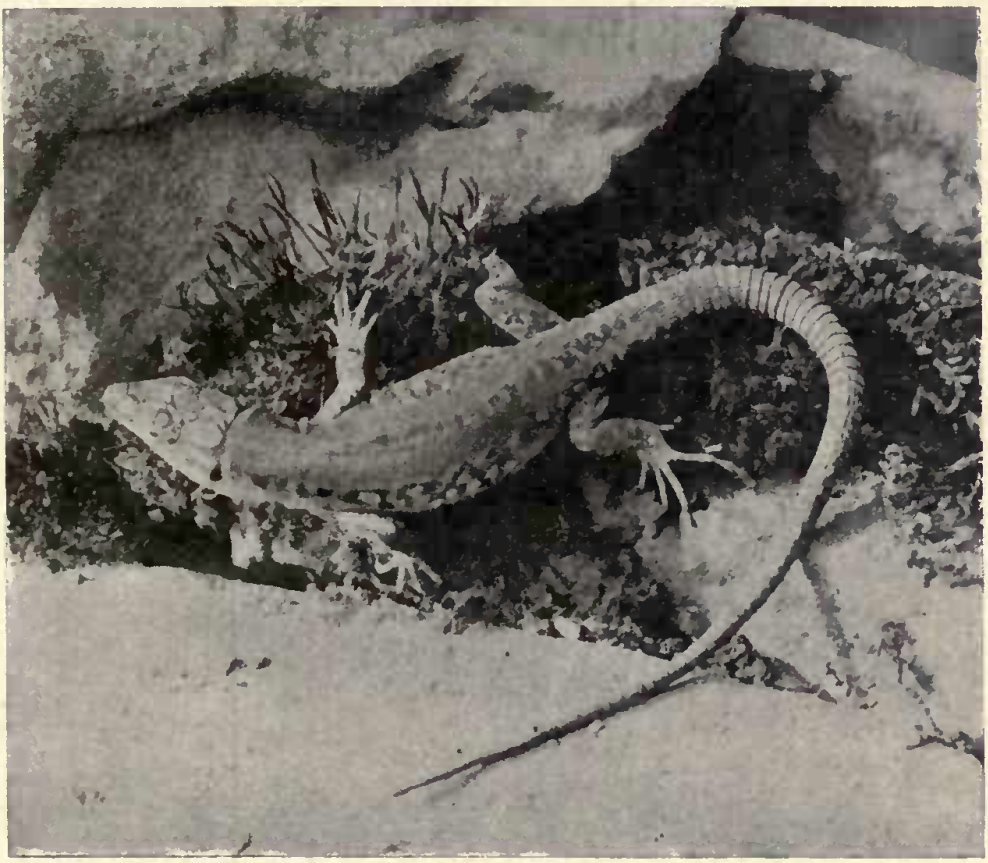
natural relics, where the record of a summer is written in dead litter, that our store of knowledge of these creatures may best be enriched. There, in Nature's own garden, already decked with plant-life for the spring, where the first butterfly loves to flit along the sweet-flavoured breath of the land, reptiles may most readily be found, when they come forth in the vernal resurrection of life and movement. In such a spot the lizard may be seen basking on a favourite stone, around him a carpet of dead leaves unstirred by the breeze, yet crisp enough to be rustled by crawling ants. You may, by approaching cautiously, come within a yard of him, so that you can see how intently he is looking, wondering what peril threatens, all the minute symmetry of his scaly back lit up in unnumbered jewel-points by the sun, his long tail curved easily, and his delicate claws, though so small, retaining a hold upon the support. But notice! he nevertheless is in such fear that he restrains as much as possible the pulsative movement at the shoulders, which indicates his breathing. Withdraw a little, and this fear will abate. You may, after a little while, see him capture an insect, or

chase some rival from the favourite resort. These incidents may be trivial, yet to see the lizard scraunch up his prey, and return, complacently licking those tiny crocodile-like jaws, to the accustomed nook, is not unpleasant; nor can we but admire the activity and intelligence by which some swift morsel, seeking shelter under a dry leaf, is pursued and captured. Again, when a rival is attacked, the rapid and repeated striking of the reptile's tail against the ground is a matter of interest in its analogy to the vibration of the tail, which in the common snake is a sign of anger with another snake, and in the rattlesnake provides a more important warning.

When the morning sun has attained sufficient power, the lizard crawls sleepily from his hole and spreads himself out on grassy litter or in a cosy niche. Presently, warmer and more active, he will proceed to drink the dew—a supply distilled from misty reservoirs, and available in even the hottest weather in England; provision alike for snake, viper and lizard, and probably for mice as well.

To capture a lizard, a cautious approach should

be made, and the hands be suddenly placed over him. But some skill must be exercised, for the tail, if held at all, will be broken off—a catastrophe which will disfigure the reptile during the greater



A BRITISH LIZARD.

part of the year. The unattached tail, in accordance with a curious nervous construction, writhes and rolls during several minutes. The tail grows again, but of less size. Among animals, the reproduction of parts that have been amputated

is a sign of a low organisation; but my lizards were intelligent enough to distinguish me from other people, and to recognise a signal announcing food at the door of the cage.

Though the lizard in confinement becomes a charming pet, yet, since he requires living prey,

HIS NOONTIDE SIESTA.

which cannot always be easily obtained, the better course is to soon restore him to the native haunt, where he may bask and doze through the bright hours, ramble about the mouse paths, and finally, after perhaps a decade, yield up his life to the snake, the hawk, or in chill weather to the mole,

by whose attack unfelt death will overcome the sleeping reptile.

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At about the time when the lizard is aroused by the touch of spring, or it may be later, when the first returned warblers have begun to carol in orchard and thicket, the child, tired of gathering wildflowers, and resting on some rough bank, may be scared to discover close at hand a glistening, snake-like animal traversing the herbage. The child screams and hastens off, to describe, with pardonable exaggeration, the dreadful incident. Yet the cause of this excitement is one of the most harmless and useful of small animals; it is the blindworm, a kind of lizard whose legs are so rudimentary as to be wholly concealed beneath the skin of the body, and whose bite is fatal only to slug and earthworm. Of its inability to harm people I can speak with conviction, for on several occasions a large blindworm has bitten my hand so determinedly as to draw blood from numerous punctures, but without the slightest consequent inflammation or irritation.

Eager for sunshine, the blindworm is attracted

by the first warm rays of spring, and at such a time is most often exposed to attack of bird or beast. One chilly afternoon a blindworm had climbed half-way up a bramble-bush, the lower part of which was shaded by a wall; and there, on some closely-grown twigs, the reptile had so coiled itself as to obtain the most advantage from the pale sunshine. On another occasion, while resting on a steep mossy slope, I saw a blindworm approaching by way of a grassy mouse-track. I put my hand in his way and he did not seem afraid of it, but, when he came to it, coiled underneath it and remained there for ten minutes at least, doubtless enjoying the unexpected warmth. Probably, gradually enlivened with the heat, he became aware of the strangeness of the situation, for he slowly withdrew and passed away.

The blindworm is not well-named, for it has pretty eyes and lids to close them—a feature not found in serpents; and although habitually slow of movement, it can really travel faster than either snake or lizard. On two occasions I have known one, lying easily observable, to disappear with such lightning speed that I could not in the least tell

in which direction it had gone; and another observer, and one of repute, has told me of his own similar experience with this animal. As with the lizard, when seized, the blindworm's only artifice is to break off its tail and leave this to reward the activity of the enemy. In a garden it is very useful as a destroyer of slugs; but it is there exposed to the attack of the cat, which will not hesitate to devour it. Fowls also will eat it, or, indeed, a lizard or a snake. But in an enclosed rockwork fernery it will survive for many years.

In the year 1880 I found an exceptionally large blindworm, eighteen inches long, and liberated it in a fernery of this kind, where the dense, self-sown plants completed an almost ideal habitat for such a tenant, and the busy worms and small slugs offered plenty of food, while a daily watering provided against thirst. Already other blindworms were there, but rarely seen. The new-comer took up its quarters in a certain corner, and climbed every day to a spot where it could bask in sunshine tempered by the rough glass of the roof. It proved to be a female, and in two successive years,

when caged for a time, it gave birth to a total number of twenty-two young ones. Year by year, when spring arrived, the old blindworm might be seen in her favourite spot, where sometimes also she was fed by hand. But her life was not without dangers. Twice I found her drowning in a trough in a corner of the fernery; and another old female blindworm attacked her savagely. The two reptiles, in the course of a long struggle, had pressed aside the surrounding plant-leaves, and lay in a smooth hollow, the head of the old one being firmly held within the jaws of what seemed a more muscular assailant. I once found on some rough grassland two other blindworms engaged in a similar contest, which seemed to have been continued for a long while. The blindworm of the fernery met with an accident and lost her tail, probably by the attack of a mouse. Throughout the warmer months of 1894 she was still visible in her accustomed nook; but the spring of 1895 did not bring her forth. Probably the severe cold of the previous winter, or the attack of some mouse, had proved fatal. When last seen she could not have been less than twenty years old.

The age to which saurians may attain does not appear to have been generally ascertained; and in this matter the influence of captivity must not be overlooked. It is, of course, difficult to watch the growth of wild reptiles, but I have had some easy opportunities of so doing. In 1891 I liberated in a very suitable spot in the garden a dozen young blindworms, not a week old. They were constantly to be found under a blue tile that lay exposed to the sun, but surrounded with ferns and ivy. Here one could easily inspect them. When a year old, the five or six of them that remained had increased to twice their size at birth. A year later there were only three or four, about seven inches long, remaining under the tile; and at the end of the third year a couple were still there, and these were from nine to ten inches in length. I never saw an adult blindworm near this spot, which was somewhat isolated; and I believe that all of those just mentioned were born in 1891. The common lizard, some hundreds of which I have closely observed, seems to attain its full size and maturity in the space of three years, though its head seems afterwards to cer-

tainly become gradually larger and its jaw more strong.

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At a spot farther from the high-road than that in which we might expect to find lizard or blind-

RINGED-SNAKE, WATCHFUL, BUT ALERT.

worm, where dead brackens have most firmly withstood the winter, or where the bramble-litter is thickest, yet in direct sunshine, lies a small green snake, his lissom length now compactly arranged in many a graceful curve, against one of which the broad yellow mark or collar on his neck shows

conspicuously. He lies so still that at first glance you might wonder whether he be a snake or a tree-root chance-grown to its semblance. But his head is raised, he is alert; his fixed gaze includes all the surroundings. One step more, and before you realise that he is moving, he is gone. The mossy boulder, or the wall at the back of the shelter, is the gate to his retreat; and only a momentary rustling tells that something is moving there after the reptile has vanished. A frightened lizard will almost immediately return to the favourite nook, if the observer be quiet; but a snake, once alarmed, is much more critical of his neighbourhood, and will not soon come forth. The early spring is the season of his most frequent martyrdom at the hand of man; for he is then most eager for sunshine, and the forest of the hedge affords the least protection.

Many have been the spring seasons during which the sun has called the scaly ophidians to its worship. The records of their histories are few, but not transient. Nature has printed them, deep down in the cainozoic rocks, in characters which an epoch frets not more than a day—the silent, eternal witnesses of a remote past. And

through the long after-history of the world reptiles have held their own, though apparently sometimes overwhelmed by stronger races; and now they are found in most parts of the world.

The man whose joy is in the Norman blood of but yesterday, and whose chest heaves with pride beneath the wide branches of ancestral oaks, may be watched from the tree-roots by the clear eyes of a motionless creature of longer pedigree. The man passes on, but that strange object remains, motionless, glistening, barred with yellow, green and black; with lidless, stony eye; betraying no sign of life save that sometimes a slender black fork springs from it, vibrates for a moment like a double flash of lightning, and is gone. When the trees shall have been uprooted by a tempest, or have fallen, a crash of fretwork wrought by boring grubs, the lithe reptile may seek its prey amidst the wreckage. When the schemes of the present owner shall be unheard down the echoes of memory, his name untraceable, and his mansion a heap of crumbling stones, the reptile will unconsciously assert a prior territorial right. The izard will bask in the curves of the carvings, or

hunt for prey in the crevices; and between the fallen arches of the windows, through which Beauty has so often smiled, the snake will raise its head, peering forth to ask the sun if summer has returned.

Showery weather is the best for snake-hunting; for when the sun shines after rain the reptiles come out to warm themselves, and are then comparatively inert. A captured snake may be carried in a small flannel bag filled with grass, or elsewhere, as may be convenient. Individuals vary in their willingness to feed; and one persistently refusing to eat should be liberated, or it will die of want. Indeed, so obviously does even a docile snake pine for freedom, that to retain it for long in captivity is but a miserable success. The winter especially is trying to such captives.

At the period of the autumnal migration of the summer birds, the snake seeks some warm retreat, which it generally finds in a hollow tree, a stack of dead wood, or similar protection, in which to hibernate. Some of them in my possession, and withheld from natural opportunities, bored into a bank of mould in their cage. Each, tightly coiled,

so worked its head into the ground as to lower itself, a compact mass, within the soil, which formed a smooth wall or casing for the reptile.

The snake can bite but not hurt; he has no poison. Often has a tame one, when attempting to take a newt or a fish in my hand, seized the soft inner part of a finger and begun to try to swallow it. But after a careful removal of the curious and perhaps painful grasp, no further discomfort has been felt, except a little bleeding from the pattern imprinted by the rows of teeth. Harmless to man, the snake is fatal to the mouse, frog, newt, and many a summer insect. The late Professor Harker, F.L.S., found many wasps in each of the common snakes dissected by him. The snake is of course an expert swimmer; and he can dive equally well. I have seen one voluntarily remain under water for twenty minutes.

Cold-blooded, cruel to its prey, greedy though the snake may be, yet a creature which cannot place itself in an awkward attitude, whose colours are always harmonious and sometimes exquisite, and which seems to enjoy reposing on your hand —is not necessarily despicable. And these were

the characteristics of a certain snake which seemed to concentrate in itself all the pleasantest features of the species. This was a male not two feet long, captured on a very dry bank, which may have accounted for its thinness and for its subsequent tameness when well fed in a cage, but, in any event, he was the most docile snake I ever had. His general hue was a deep glossy green, thickly studded with black; the ring on his neck bright orange; and in the centre of the back, in a certain black spot, was the mark of an old wound, long since healed. His tameness was such that he would remain coiled around the hand while a book was read. From the same perch he would capture his dinner (a newt or a fish) in a vessel of water. Quite comfortably would he coil around the neck. But, after awhile, he lost appetite, and was set free, without hope of recapture. Some nine months later, at a spot more than a half-mile distant from the place of liberation, I nearly trod on a much larger snake, which was lying coiled and asleep. This one was of a deep mahogany hue, but the aspect of the black marks on the head seemed familiar. Shortly afterwards the new arrival cast

its skin, and thereby changed to a most lovely green colour, thickly spotted ; and there upon its back was the mark of the old wound that had distinguished my best and tamest snake. But the former pet had become utterly untameable, more wild and frantic than any previous tenant of the cage, of which, probably, he may have retained some recollection. Once more he was taken to a rough tract, and liberated. Never before had I recaptured a snake, though nearly seventy had been through my hands ; but two years later, when looking at some recently pickled reptiles from the locality, I saw one handsome specimen which bore on its back the curious marks by which the old acquaintance had been identified.

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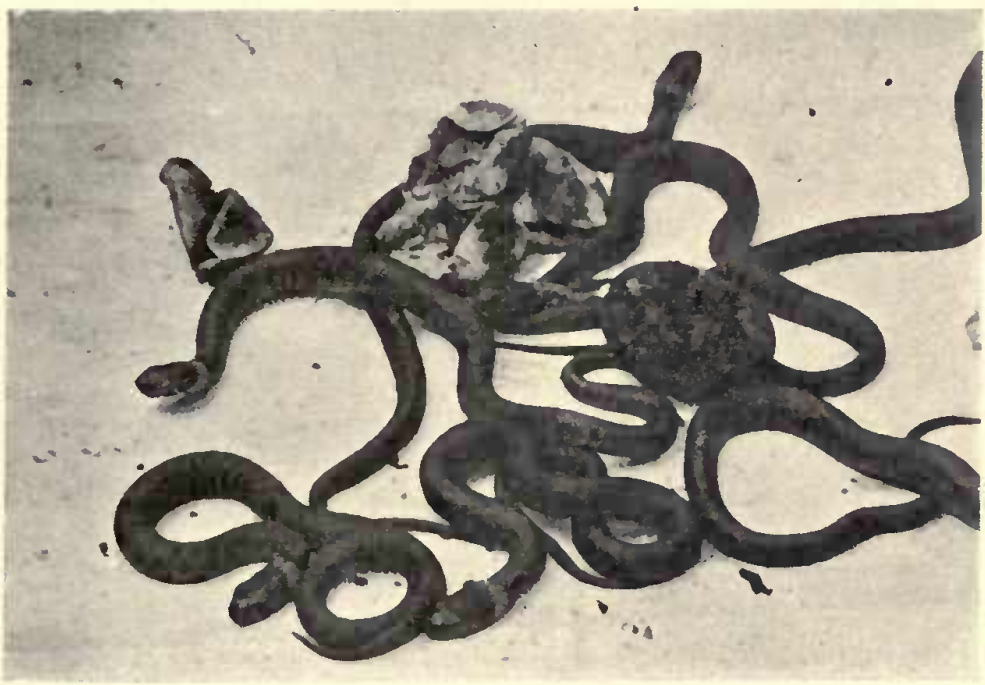
The general similarity of form between snake and viper is one of the chief causes of the destruction of the former reptile, which many people would spare if sure of its identity. Any one viewing for the first time either in the wild state would not be likely to investigate its distinguishing features—he would be more than satisfied by a glance that revealed a serpentine

form close at hand. My first acquaintanceship with the adder was similarly brief and unsatisfactory. At the age of six years I was privileged to accompany an elder brother for walks in the fields. One morning we traversed a dense thicket, in which he cut for me an ashen stick with a heavy



YOUNG SNAKES JUST HATCHED.

end. While he hastened after a rare butterfly, I slowly wandered beside a sunny wall in search of violets. Suddenly there appeared at my feet the long, light-coloured body of a snake, whose head was concealed beneath a bush. Instinctively the little cudgel was raised to strike, but fear prevented

further movement, and I stood for some seconds spell-bound or fascinated. Then, like a flash, the reptile disappeared under the bush. I ran to my brother with a face so white that he at once guessed the cause of alarm. I still remember distinctly the shape and attitude of that reptile; but I cannot call to mind the zigzag black markings which must have formed a line down the centre of its back.

Some four years later I was again in danger of actual contact with a viper. Walking slowly on a path through a wood, I saw a very fine ringed-snake disappear in the herbage, and cautiously followed, but could neither hear nor see that reptile. Bending down, I gently parted the dense growth of spurge that covered the ground. The movement revealed no ringed-snake, but a brightly-coloured male viper coiled within six inches of my outstretched fingers, which he was eyeing intently. I struck at him with a stick, but without success. Familiarity with the species enabled me to retain from that moment of surprise not only an impression of the general appearance and attitude of the snake, but also a clear idea of its markings, and even of the red vertical pupil in its eye.

Many years passed before the adders and I renewed our acquaintanceship. It was a lovely day in spring. The thickets were vocal with freshly-arrived warblers, and the breeze scarcely ruffled the long dead grasses on the hillside. In the warmest corner was an old heap of stones, partly covered by brambles and matted creeping plants. A fine place this for a lizard or a blind-worm. Approaching quietly, I suddenly saw a slim green snake of great beauty (afterwards the pet already described) dart into an accustomed shelter. A pause; one step farther, and lo! within easy reach is the shining length of a blindworm. Stooping, I would catch it; but at that moment there is a hissing rustle nearer my feet, and a large, dark-hued viper is wriggling through the plants at the very edge of the stones. Instantly the walking-stick is placed firmly on the nearest reptile; but at that instant another viper, a liver-coloured horror, glides from the very spot where the blindworm lay —in fact, the two reptiles must have been almost in contact. The adder pressed under the stick writhes and hisses, and then makes another attempt to escape, but he is promptly seized by

the tail and thus carried towards a path. Somehow, however, he contrives to loop his neck around his body, and has to be dropped, falling on the bare twigs of a dead hawthorn shrub. Here he coils

THE BRITISH ADDER.

tightly, but the air in the shade here being by no means warm, he soon becomes lethargic, and a few minutes later his tail can again be held and he be carried as before. Laid on a bare path a snake is almost helpless, finding nothing to aid its progress;

and then, if attempting to glide off, a walking-stick placed across the way enables the creature to be lifted like a piece of rope, when he is half-way across it. The adder resents this treatment furiously, but is wise enough to glide into a bag of grass held towards him, and thus is soon effectually captured. The first viper I caught was made the medium of a rough operation in dentistry, for I cut off with a pair of scissors his two long fangs, and thus rendered him harmless for a time, but not for very long, since new teeth soon grow to replace any that are accidentally fractured. Breakages of this kind may well occur, even to the wild viper, for it strikes its prey with great force. The toothless specimen above mentioned demonstrated this at the expense of a house-mouse which I turned into its cage. The mouse ran about near the snake quite fearlessly, and even over him, but suddenly the adder struck him, and with such force that the mouse was knocked all across the cage and against the far side, as though by a smart blow with a stick. At different times I have had several of these reptiles encaged, and once had five of them. They all drank water readily, but would not eat

anything; and they were untameable. Sunning themselves as though contented, they betrayed a sort of vicious alertness when approached, and watched, in a suggestively expectant attitude, any one who was near. Inert and helpless when chilled, they were always ferocious when warm. Useless as captives, they were returned to those spots in which their venom might be of more service, namely, in the runs of field-mice.

CHAPTER IV

MAY MUSES

By the Stream

DESPITE the increased necessity for toil when the Maytide upheaval of animal and vegetable life is in progress, even then the spare hour arrives, though possibly but once a week, and one's natural instinct is that it be spent in Nature's wild garden, to recruit exhausted powers in the fields or by the stream. In the fields there is not much provision for rest: "mows" are strictly preserved; "ploughs" are, to say the least, uncomfortable; and meditations in pastures may be interrupted by inquiring cattle. Beside the brook may be found greater means to contentment. Here may Labour rest his weary

limbs against a sloping pollard, or on the rail of a broken fence, while Fancy, relieved from the duties of a pioneer to trade, may lave his dust in the water, peep at the modest flower, or dart to the thickets, down the track of a cuckoo's note. Here is always something worth notice—the vole, clumsy and stupid; the water-shrew, less often seen, but more pleasing; the gaudy fly passing like a dream into the distance of forgetfulness; the occasional agile fish; the never-ending movement and all the varied voices of the water. Here the mind can escape from the certain to the possible, to create its own feast of beauty and sing its own song.

Following the course of the stream, we may probably enter a dell where the trees are tangled in a maze above the water, which is doubly shaded by their crooning arms. Here are the nooks where Flora dwells, and the corners where the wren and robin are nesting. Here the wings of moth or butterfly may ring the changes of the bluebell, and murmur in the bugle, on banks frosted with broad-leaved garlic, or red with London-pride.

WHERE THE BROOKLET SINGS.

Let us descend to the rocky bed of the stream, and clamber over the green boulders, up the cataracts, to little wells and shallows where the black fly skims each level surface as if in time with the ceaseless music of the water; and between steep slopes where the fieldmice have a home; while we crush underfoot the wreckage of dead branches that a storm has felted amongst the stones.

Higher up the stream, where sunshine burns the banks, the blooms are closer clustered. Here the sedge flaunts its tassels, and the brooklime spreads a green carpet. And here may be seen the effect of the continued action of the current, for masses of mould have fallen into the hollows and been washed away. Here dense tendrils of clematis and bryony hide the water; but we still hear its voice—as it were that of hope crying in darkness that light and joy are coming.

Animal life may be abundant here. Perhaps a chiff-chaff (a morsel of soft yellow and green plumage) will quit her nest in the herbage to see who is the disturber. She will pretend to be feeding, while in fact she is watching us or listen-

ing to a cheery song of "chiff-chaff, chip-chop," from a near tree. On a decayed pollard a starling may be singing to his mate. Earlier in the year he might have been seen extending his wings towards her, and she joining in the song; but now she is most likely on the eggs. On one of the bushes a willow-wren may be seen courting —a bird as affectionate as it is melodious; and on approaching his consort he hangs his wings loosely, and seems to be helpless with longing, uttering meanwhile a very plaintive note. The other bird, however, with true feminine instinct, seems not to notice these attentions; she hops to another twig, or flies to a short distance after an insect; but this does not diminish the ardour of the suitor. And then, perhaps, he finds and takes to her a tangible offering, which is accepted.

When naturalists shall at last have tired themselves with wrangling over the distribution of species, and the comparative importance of certain minor physical features, such as the length of hind-claws or of tail-feathers, they will perhaps take a leaf out of the book of the naturalist photographer, and tell us more of the habits of

birds—what they eat, how they eat it, and so on. And one of the most interesting subjects for such

THE WILLOW-WREN'S LOVE-SONG.

an investigation would be the love-gifts given by birds to their mates.

Of course, if any adult birds habitually fed each other on ordinary occasions, the same behaviour in the breeding season would be no evidence that it had anything to do with love. But the converse is the case. I have never heard of a wild bird that habitually shares its food with a mate. In times of scarcity, however, a bird has sometimes been observed to feed a companion. In the severe winter of 1879–80 there was a good deal of snow in the western counties, and the rooks had a bad time, finding a diet of mangold insufficient. Several of them came to a garden in a town in which the birds were fed. Another rook, whose flight betrayed its lightness and weakness, perched in a tree there, and one of the usual two or three took up a piece of bread directly to the new-comer, and gave it up to him without any show of resistance or anger. I saw this from a distance of about twenty-five yards. Quite possibly the birds were mates; but the incident is only mentioned for its rarity in such weather. In early spring, rooks feeding on the hillside or in fields may often be seen to offer food to each other.

In the nesting season the males of many species feed their mates on or "off" the nest, as is well

FEEDING HIS BROODING MATE.

known. The rook, for instance, brings food to his mate, who, when receiving it, flutters her wings

(a frequent habit at this season) and also utters a hoarse cry similar to the cries of the young. The adult rook utters this note on no other occasion. In several species of finches, also, the male feeds his sitting mate. I have seen this done by the chaffinch, greenfinch, linnet, and lesser redpole. The recipients shook their wings and uttered call-notes. The food thus bestowed could hardly be termed a "love-gift," but when, before birds have a nest and apparently before they have paired, the male gives the female morsels of food, it is fair to assume that this courtesy is intended as an earnest of passion—that it is, in fact, a love-gift. In the ordinary books on birds there will be found no reference to this habit ; but in the great book of Nature it is recorded, and may be read the more easily by a quiet observer with a good telescope or field-glass.

Among the birds of prey it is probable that the brooding female obtains food chiefly by the agency of her mate. Major C. H. Fisher (the late well-known falconer) told me that the male peregrine hunts all day to supply the domestic larder, which is in charge of his mate.

Among domesticated birds, the common fowl affords a conspicuous instance of gallantry, when the male calls the female to some choice morsel. He obviously only intends the tit-bit for the hens, and any rival attempting to partake of it is at once attacked. It is well known that some of these birds are so gallant that to ensure them the best condition for the show-pen they must be fed separately from the hens. An instance occurred under my own observation. A cock and five hens were so well fed that one of the hens became ill from sheer fatness, as dissection proved; and the other hens were almost in the same condition; but when the cock was killed he was found to be quite thin, though he had seemed to be a very fine bird, in splendid plumage.

One of the indications of pairing by pigeons is the insertion of the beak of the female into that of the male, and his seeming to eject food into it, the action being accompanied by that shuffling of the wings, seen when the young are fed. It does not appear, however, that a considerable amount of food (if any at all) passes from the male. Homers never omit this performance before

pairing. The male homer is passionately fond of home, mate, and young. But, though his mate is a model wife, he is not a model husband, and often, especially if a strong bird, he is likely to bring trouble into the life of any unmated young female pigeon in the loft. But it is the nearly invariable rule for the cock to "feed" only his own hen. This very curious fact indicates that to the wife of the nest this courtesy is reserved, and that the other birds are deemed unworthy of it. These observations do not apply to pouters, runts, and trumpeters, which are said to be "very immoral." It should be remembered that homers live the most naturally of any except farmhouse pigeons; and they may, therefore, be supposed to possess the natural instincts of their race in greater perfection than any other fancy breed.

Some day, when fanciers are tired of fantastic competitions, the moral character of the pigeon will be subjected to careful analysis, and its loves and passions will be minutely tested; and then the unprejudiced observer may perhaps be told that there is evidence that the bird is naturally a true and ardent lover, and a most faithful mate;

and that the arbitrary unmating of birds and binding them with fresh connubial ties, as is so commonly effected by fanciers, causes a great wrong to be done to the birds, who, nevertheless, are instinctively honourable to the new obligations enforced upon them, and can be trusted to mix freely with former mates, when nobler man, in the same situation, would often sever present ties for the sake of the past.

Returning to wild birds, my opportunities have been too limited to enable me to generalise; but the following observations may be not without value to those who try to see in the bird a sentient and tender being.

A few days after the arrival of the spotted fly-catcher, a pair of them were in a near tree. The male often attempted a song, and was evidently following the female. He suddenly went forth on a longer journey than usual, as though for a larger insect, turned and went to the female, and in the gentlest manner presented to her the captured insect, which appeared to be of the size of a bee. She took it sedately. Shortly after, she received another gift of the same kind. A second pair of

flycatchers behaved in precisely the same manner. In April a male robin gave some food in the same manner to his mate. Both birds often uttered their call-note.

Several male chaffinches, before nesting-time, gave captured insects to what seemed their intended mates. All of the insects were captured in flight. The chaffinches were full of ardour, the males all a-flutter with excitement, following the females, and with the cuckoo-like flight, which is one of the bird's surest signs of love, and they were repeating the soft love-note almost incessantly.

On one of the first days of May two willow-wrens were busy in a hedge. The male often sang, but was mainly intent on keeping near his companion, who appeared to be a female bird. She was seemingly indifferent to his presence, and hunted for insects with all the graceful activity of her species. The male was greatly excited, his wings lowered and pulsating, and his call-note prolonged to a scream rather than a chirp. Through the telescope it was evident that she also was trembling a little. Suddenly the male

darted forth, returned, and alighted near the other. He then without haste went to her, and her beak met his. The incident was so brief that the telescope could not be used ; but one might perhaps fairly infer that he had found and had bestowed a love-gift. She accepted it with the same sedateness that the female flycatchers, chaffinches, and robin had exhibited in the like circumstances.

A commoner interesting sight is that of parent birds attracting to themselves the attention of some enemy, in order to save their young. One day a willow wren fell flop on a dusty road, and not two yards from me. I thought it must be a young bird or an injured one, and stooped to pick it up. The creature scrambled through the dust to the other side of the road, and then seemed just able to rise into the hedge. It was proved to be an old bird in vigorous condition, and merely wished to entice me from the vicinity of its nest. I saw a similar method adopted by a pair of blackbirds on behalf of their young. A cat was frequently stalking them, and when she appeared one of the old birds would feign distress and flap its wings on the ground. Instantly the cat would

charge. But the bird, though often seeming to be in danger, would manage to avoid the attack, and would lead puss a chase around the garden, and up to the top of a thick tree, while the other bird fed the young. Suddenly the cat would be left in the tree, to descend which was a matter of no little difficulty. The whole performance occurred so often that a terrier on the premises learned the meaning of the blackbird's cries, and often brought relief by hunting the hunter.

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But let us not restrict the higher developments of sentiment and action to the bird and the quadruped. Indications of the same divine instincts may be found in the chill and silent world of water. Following down the course of our rivulet, we come to a slow shallow, where the muddy bed lies undisturbed at a depth of from four to five inches. Here lives a fish, small and insignificant, but in some respects nobler than the salmon, for it builds a nest with at least the architectural skill of the heron, and guards it with bravery and address equal, perhaps, to anything of the kind in the whole realm of Nature.

At first sight of them here no one would suppose that these little fishes possessed even one-half of their beauty and intelligence. They seem to be of much the same colour as the bottom of the stream; one or two appear to be standing on their heads in the water, or diligently scrutinising the ground, and sometimes two of them meet and dodge around each other quickly, and then one chases the other away at speed. Some of these, the males, if viewed in an aquarium, would be found to be gorgeously coloured; those standing on their heads are fanning the eggs in their nests, and those dodging around each other are fighting cleverly.

The fish has no specially prehensile member wherewith to grasp the materials for its nest, but it is thoroughly armed for combat with sharp spines —two beneath, almost equal to the width of the fish, and three on the back, much shorter, but not less keen and serviceable. From these weapons the fish derives one of its names, for it is the "three-spined stickleback" (*Gasterosteus leiurus:* Cuv. and Val.). The spines are erectable at will; and, as would be expected, they are commonly displayed when an attack is about to be delivered

or to be resisted. And so natural is it to the fish to "draw" these little swords, that if some strange living object has to be removed from the vicinity of the nest, the spines will be erected when it is seized, as though another fish were being

THE MALE THREE-SPINED STICKLEBACK AT HIS NEST.

attacked. And they are extended when the fish gapes or wriggles in a way that suggests "stretching itself." And they also serve to indicate thought in the fish, for when one meditates an attack on a neighbour, you can see the spines twitch, and sometimes, when he thinks better of it

and determines to retire, you can see short, jerky movements of the spines, as though their owner were thinking, "Wouldn't I like to, if I dared!"

In February or in March, according to the forwardness of the season, the sticklebacks leave the deep waters in which they have been secluded throughout the cold, and seek the shallows. But as yet they keep under the banks, and they are all of the same hues—dusky-green on the back and silvery white beneath. Spring advances, and the males become pugnacious and strike at each other with their spines, and chase and bite the females and the young of the preceding year; and they begin to have a reddish streak beneath the gills. The stronger males take possession of little nooks and corners near the edge of the water, whence they drive all other sticklebacks, and soon the extent of these appropriated areas becomes clearly understood, until, in April or early May, each victorious male has his little home or property, the size of which is generally determined by the number of the fish in the vicinity. In some localities each fish may own two square yards or more, and in others not more than two square feet. The

boundaries are not settled without many, almost incessant, contests ; and, from the number of dead sticklebacks to be found at this season, it seems that many a brave little fish receives a fatal wound while fighting. But I have never seen one actually receive a serious injury in this way, and in my boyhood I must have spent hundreds of hours watching these fish, both in aquaria and in their native streams and ponds. Each fish soon learns the distance to which he can approach another without risk of being immediately attacked, and at what point he must hazard a battle in defence of his own property. It is easy to see that they know to an inch where the imaginary boundary lies ; and the fish that flies from another, on whose domain he was trespassing, will turn directly he has attained this distance, fully prepared to resist any further pursuit. The victor also recognises this fact, and generally desists from the chase directly the fugitive has gained his own quarters. Sometimes one busily occupied in tending its nest will be unexpectedly attacked by another, who, seeing the enemy busy, and not on the alert, will try to get home one blow before the other has

time to put itself in a posture of defence. In such a case the aggressor nearly always departs as swiftly as he came, with the other in hot pursuit, and often without having delivered any blow at all.

But it is when two fish have not yet decided which of them is to be the occupier of some desired nook that the most interesting combats take place. Then we can observe in a fish not two inches long instinctive skill in fighting comparable to that of the game-fowl. For the fish endeavour with the utmost agility to out-manœuvre each other, so as to be able to use the spines to the best advantage, and at such times they will deliver strokes or cuts with the spines at the rate of three or four per second. At such a moment, sight cannot clearly follow the movements; and though the struggle is not continued for more than a few seconds, it is renewed again and again, until one of the rivals is compelled to retire.

Towards the latter end of April the males begin to build their nests, which are constructed wholly without aid from the females. Much care and toil are undertaken. Every thread selected is mouthed

many times before being deemed fit for use. The fish selects a site in his territory, generally in the open, and carries to it numerous fibres and roots. These are arranged in a rough platform on the mud, generally weighted with small stones at the edges, as though the better to withstand the force of any current in the water. Many of the threads are thrust into the mud, and gradually a compact mass or nest is formed, the fibres of which are so densely interwoven that they will not separate even if it be disturbed with a stick, or lifted bodily by hand.

In the centre of the nest is a circular opening, and the fish is never tired of trying to improve this or to render it more firm. Indeed, he is wonderfully painstaking with every part of the nest, not only when first it is constructed, but during the whole time that it is occupied by the eggs. With the like carefulness he removes from the vicinity any water insects. Caddis grubs are lifted bodily in their cases and dropped at a safe distance; water-snails are bitten and induced to change their direction of travel; and even the newt is similarly attacked and driven off. But

especially are other sticklebacks chased from the spot, and not without reason, since they devour eagerly the eggs of their own species whenever an opportunity occurs. I have seen roach, however, permitted to approach a nest without molestation by the stickleback guarding it, which certainly could have defeated in combat a roach of many times his own size. One in a tank blinded two perch of six inches long, because they ventured near his nest. On the other hand, some sticklebacks in an ornamental pond seemed to have driven the young carp from the shallows into the thickest shelter of the weeds. The owner of the pond had mistaken the glowing sticklebacks for the young of some goldfish which also occupied the pond, and it was only when I pricked his hand with the spine of one of the little warriors that he would admit his error.

The nest is at last ready for the eggs. Its guardian is now in splendid condition, and in variety and brilliancy of colouring excels other fish as much as the humming-bird excels other birds. The lower half of his body is of bright crimson, his eyes large and steel-blue, shot with

green; the gills are tipped with gold, the back is green, shaded with gold. After every successful combat he appears to assume even brighter tints, but if overcome he fades somewhat, and often, if confined in an unsuitable vessel, he becomes as white as other fish on the under surface.

When the nests are ready, the female fish are seeking suitable places in which to lay their eggs; but if one approaches a nest she is attacked by the owner, and has to fly for her life.

And here it may be truly said that of all wretched creatures on the face of the earth, at this season the female stickleback is the most miserable. Less agile than usual, because of her condition—which is such as to be obvious (one would think) to the meanest intelligence or instinct—she is chased, bitten, and driven away by every male on whose territory she trespasses; and, there being hardly ever any neutral ground between these areas, she has no sooner escaped one persecutor than she is attacked by another, until possibly she can find temporary safety in the weeds, into the densest growth of which she will wedge herself. But even then she may have to lie

with motionless fins, and unbalanced in the moving water, in order to escape observation. This torture of the female fish is not a matter of one day, nor of one locality. It goes on for weeks, and in most of the rivulets and ponds of England.

But as the days pass it becomes more and more necessary for the female to find an asylum for her eggs, and the instinctive desire for this overcomes even her fear of the ferocious male. She approaches the glowing guardian of a nest, who hastens to drive her away. But she is now desperate. She does not dart off as usual, but displays her spines, as though to resist the attack.

Instantly his manner changes. He rushes towards the nest, then returns and hovers in front of her, rapidly starting back and immediately returning, curving himself meanwhile in the manner of a little dog who seeks to induce his master to go for a walk. The female may not at once understand what this means. Often she darts off, wildly scared, but soon she will follow him slowly, curving herself meanwhile as though to reveal to the utmost her unwieldy condition. When at last she sees the nest she plunges under it and forces

herself along, so that the tail at one side, and possibly the head at the other, are all that is visible of her.

The male now seems to go mad. He stares for a moment at the nest and its occupant, then rushes around the spot, returns and stares again, as though unable to believe the evidence of his eyes. And woe betides any fish venturing to make an attack at this time. After a minute or two the female, having laid her eggs, quits the nest, and is immediately attacked and chased away by the male, who seems to have forgotten his former manner towards her.

The nest is so dense that water cannot easily flow through it. But fresh water must constantly pass to the eggs or they will die. So the male frequently fans them with his pectoral fins, meanwhile using the tail to maintain his position over the nest. Thus two currents are produced, the one passing forward from the fish into the nest, the other backward from the tail. This curious contrary motion of fins and tail never occurs except on the occasion and for the purpose indicated. It is apparently peculiar to the male stickleback.

One would like to know whether the young fish, when first attempting the effort, are as successful as their senior rivals; probably not. They all appear to be able to fan the nest for a minute or more at one time, and to repeat the effort not only at short intervals during the day, but far into the night. Indeed, I have seen the light ripples on shallow water, apparently due to the action of the tail of the fish I had been watching, long after the fish in question had become invisible owing to the dusk. Seeing that the forward current produced by the fins must equal that of the tail (or the fish could not remain stationary in the water) it is clear that in the case indicated the fish exerts a great deal of energy.

The eggs, which are nearly as large as mustard seeds, are hatched in about twelve days; and, as several females will lay in the same nest, the fry issue in successive batches. The fry are nearly a quarter of an inch long. They are precocious, and often wander into danger, when the parent goes to bring them back again. If he took them up in his teeth he would destroy them. An observer has recorded that the old one brings back the young

by puffing at them (Day's "Fishes of Great Britain and Ireland" vol. i. p. 243), and no doubt they could so be recovered. But two sticklebacks in my keeping employed a surer method: the parent took the young one quite inside his mouth by means of a great gulp, and, returning to the nest, blew it out among its companions, the little one turning over and over from the violence with which it was expelled. While the old one was carrying this tender morsel his mouth was completely closed, and the gills were not moved, and he therefore could not breathe. It may be as well to mention how I came to see all this. The whole scene was several times witnessed from the distance of not more than a foot; not, it is true, in a stream, but in a large milk-pan which had been carefully prepared to resemble the habitat of the fish, and in which, in two successive years, a brood was reared.

A brooklet near Eltham revealed an equally wonderful incident in the ways of this fish. Two had their nests about two feet apart, separated by a natural barrier, by the sides of which they often fought. One day I found both nests being tended by a single fish whose labours were incessant, both

nests receiving apparently equal attention alternately. I watched him at intervals during more than an hour and a half. The missing fish had probably been killed by a bird. A week later the stream had so shrunk that one of the nests was almost dry, and had of course been abandoned. The other was in good condition, and closely guarded as usual.

In the Thicket

Although the streams now reveal wonderful organisms endowed with quick perceptions and provided with diverse weapons, it is not in the water but in the busy world of the thicket that life now attains its fullest glory—where every sound is music, and every creeping thing a marvel. But here, as elsewhere, the brightest coloured objects are not necessarily the most pleasing, nor are the loudest voices the sweetest. The gaudy titmouse, for instance—he of the sharp, clinking note — may pass unheeded while the mellow willow-warbler, clad but in sober green and yellow, holds captive our thoughts as he repeats at brief intervals one of the most delightful songs of

spring, or while the chiffchaff with lively cry threads the mazes of the twigs. But more passionate than either of these, though certainly less musical, is that other warbler, the woodwren, who is also clad in soft shades of the same colours—fitting livery for a minstrel of the tree-tops. He is as agile as any of the warblers—those harbingers of summer, lithe hunters of noxious insects, and guardians of leaf and blossom.

The woodwren is found farther in the depth of the wood than either willow-wren or chiffchaff. How often do people hear its short, full "kew, kew, kew" sounding like a warning whistle, without knowing that the sound proceeds from this fascinating little bird? How often do they notice its curious, sibilous song—which reminds one of the frictional noises made by wind-rocked branches rubbing against each other—yet never observe the passionate gesture which accompanies the strain? Often may the bird be seen in the woods darting amongst the branches, springing lightly from twig to twig, or resting for a moment to sing, the movements always graceful, the song always pleasant. But it is when we are able to witness at the dis-

tance of only a few feet the flight during song that the bird is most attractive. These opportunities, however, are not very frequent, because it generally prefers to flit about the upper branches, where it seems, as viewed from below, merely a tiny, restless creature busy amongst the leaves. But sometimes on a wooded slope the haunt of a woodwren may be found, and then a peaceful observer can pause with delight to absorb into memory one of the most charming incidents of the thicket. It may be that you have walked some distance and are resting on a sun-dried, fallen tree, yet on a level with the tops of its survivors on lower ground. A little green and yellow bird, beautifully neat and trim, alights near, but seems not to notice the strange presence; it reaches upward to take a gnat from the under side of a leaf; darts into the air for a passing insect; at one moment disappears in the canopy of waving leaves, and anon returns. So neat and pretty and agile, yet so frail is he, you almost hold the breath for fear of alarming him. A small cloud hides the sun, or a hawk has appeared in the sky, or something else has caused alarm, for he suddenly utters three times a full-

toned note—"kew, kew, kew," which you have so often heard in the woods without knowing whence it came; and now perhaps the source of these loud sounds is so near that the lift of the wings with each note can be clearly seen. But the cloud has passed, the hawk has gone, all is well once more, and the bird sings. Is that a song? "Sip, sip, sip, sisi, sisisisisisi." It is but the repetition of one cry, and in this respect it may be compared with the barbarous burring of a nightjar or the crowing of a fowl, although there is a wonderful accelerando movement in it. The singer, lacking the instinct or the mental initiative to advance from the simple to the complex, has adopted a more obvious mode of expressing his ardour, and this is by such an agitation of the whole frame as suggests a frenzy of passion. In this suggestiveness the bird excels even our best singers. The nightingale himself, content to reiterate a splendid tone, remains almost still throughout each strain, but the woodwren's every fibre trembles in his song—nay, the bird quits his perch and sings while passing from branch to branch. It is at this moment that you should see him at a short distance, when with

intentional delay he slowly passes in hovering flight from one green bough to another, extending to the widest his olive-green wings and tail, his legs hung down to impede his course, while all the time he is singing a prolonged strain to

THE SONG-FLIGHT OF THE WOODWREN.

the mate who is watching from a nest in the brambles.

But the singer is answered by another, and a rival draws near. Our bird visibly pants with rage, lowers his head, and darts at the intruder.

There is a momentary disturbance amongst the leaves, a brief pursuit, and he returns victorious to his perch. Now a blackbird sounds an alarm, and the singer speeds away through a glade, but a minute later he is back again, singing as before. Approach the brambles, and the warning note rings out. The mate flits from the tangle where she has been warming into life the woodwrens of another year, and as she flies turns her head to look at you. Now, left alone, she has again entered the bush, and the song is resumed. See, the singer is preening himself within sight of her. And why not? She knows that he is not the less ready to signal danger, and when suddenly his head is raised and the yellow throat ruffled with a song she may know that she is not forgotten.

The song is not very melodious, yet it is pleasing, and afterwards, in the shadows of the city, where vice, misery, and degradation strive for the mastery, memory may whisper in this tone that in many a woodland glade are sunshine, song, and peace where woodwrens glide among the branches singing love-songs to their mates.

. . . . .

As successive years pass away, bearing from us so many recollections of pleasant incidents, overwhelming the harmonious sounds and dulling the delicate pictures in the treasure-house of memory, some of the sweetest of those sounds and clearest pictures remain fresh and bright. Such survivals do not necessarily recall the occasions of important or serious decisions, but often they remind us of moments when some emotion was exaggerated. No conscious effort revives them, but often some trivial factor sets in motion the tense chords which are yet ready to vibrate in the old way. Thus in the joy-time of the year, when the land is bejewelled with flowers and every voice is tuned to its sweetest strain, I am reminded of a nightingale that sang in a dense thicket on a slope not many miles from a western city.

In this spot everything had been left to Nature. She had been the only gardener and had set all the trees. Although all the lesser details of her handiwork were concealed by the darkness of night, the air was sweet with the perfume of wild flowers. At a brief distance a stream tinkled and murmured as it rippled and plunged from ledge to

ledge down the slope. Some great woodland trees bounded the horizon. It was nearly the middle of May when a friend showed me the way to this bird's home. We walked quietly, yet disturbed the browsing cattle and frightened a brown owl from his beat. My friend said that this nightingale was a remarkable one, and his opinion was justified. Many had I closely observed in order to record their occasional mimicry and the relative frequency with which different ones uttered certain specific notes of the species. One had sung so like a common whitethroat that his strangeness was observed and mentioned to me by a lad who knew very little about birds. Another, after the destruction of his nest (for the benefit of a local lady collector), uttered only at long intervals a single miserable note. A third could repeat an exclamation more than thirty times without a rest. But none sang like this nor in so fair a spot. There was a weird charm in the place. The moonlight revealed the outlines of the great trees and glimmered on the dewy grass, betraying the undefinable forms of the cattle. It lit up the delicate greenery of the larches, making this more

beautiful than any sunlight effect on the same trees. Yet all was forgotten when from a dense clump of bushes stole the long-drawn, high note of a nightingale, so sweet that one involuntarily held the breath to hear. It was repeated again and again, and, though the whole phrase occupied but a few seconds, it seemed to shed a flood of light and music over the scene. It seemed to spread throughout the firs like the sudden blaze of a meteor. The elms seemed to welcome it to their wide arms and to ring its echoes as though rejoicing in the lovely tones. Far down the glade the lovely message passed. Rapidly attaining the glorious climax, it filled the scene as though Nature herself were singing—and then? Silence, broken only by the murmur of the water, now sounding dull or discordant. But the bird made no long pause; from two to three seconds was enough for him not only to recover his voice, but to devise some new, vigorous, and daring strain. His was a song of contrasts almost as violent as that of his wild notes and the succeeding silence. One phrase seemed a cry of woe, the next so fierce that a listener could at once understand how

this quiet-looking bird may fight to death with a rival ; anon he was overcome with joy—more merry than a blackcap or that mountebank among birds, the whitethroat.

We went nearer, close to the bushes in which he was perched, and the music was all the sweeter. Here had Nature set one of her masterpieces. Every emotion seems to have attained its greatest development in some animal. The sterner guide predacious creatures to their prey ; fear is everywhere ; but love and song are remarkably the endowment of the nightingale. Where else shall we find notes so pure? Our highest compliments to human singers attribute some of the refinement and passion of this bird. He produces the purest tones that the world hears. He alone is complete master of crescendos from faintest to loudest, produced without effort, as if liberated from his exulting breast.

We drew nearer yet ; and then he was clearly visible against the sky, and not more than a yard distant. With drooping wings and tail half-spread ; his throat swelled by every pean ; his graceful form leaning somewhat forward ; heeding not the strange

human intruder; intent only on the song and that which called it forth—he uttered a torrent of music so sweet and yet so varied and vehement as

AS WE SAW HIM IN THE MOONLIGHT.

to dazzle the human ear, which, enchanted yet insatiate, thirsted for more, even in the short intervals of silence. At that distance one could per-

ceive even the subtlest inflections in the notes, and trace some of the emotions that called them forth.

What is it makes this little brown bird excel the world? Is it a blind, mechanical instinct? Does the cold face of the moon, the balmy air, or this calm scene inspire him? Neither; but, below one of the bushes there is a nest, a home; and in it reposes a graceful form; there listens an attentive ear; there watches a placid but soulful eye; and there a brave heart fulfils its maternal duties. He knows it all. Rob that nest; destroy the faithful watcher; and that song will be as a dead and withered thing. And she, lying there, silent and still, fulfilling the precept of nature, is yet a being of swift wing, and agile limb, strong and active.

Much of the song of the bird seems to be beyond us, bringing us face to face with Nature, the impassible. Yet, despite the influence of artificial centuries, in which a concealment of actual truth and of natural kindliness have so often triumphed, there are yet chords within us vibrating to this strain. Let her who would barter affection come hither to be taught a wiser scheme. Poor boy, whom the roué might persuade that

honour and love do not go hand in hand, come and hear what a victory has been won by this bird in a contest of love, devotion, and music, waged through the long history of the woodland world. And you, saddest of all, parents who love not your offspring, come, and be shamed by a little bird. It has been stated by a good observer that the nightingale follows and with snapping beak menaces people intruding on the vicinity of his nest; certain it is that on such an occasion he frequently utters his alarm-note. When the fledglings are hungry he does not sing; when they are in peril he utters harsh, loud croaks; the singer has forgotten his song; the lover his passion; but here is a devoted parent. So great are the kindly instincts of the bird that in a cage he will even adopt the young of another species.

Listening to the bird, we forgot that the early hours of morning were passing swiftly; nor did we notice the serried row of cattle come to inspect us, and standing like spectres in the dusk. Something else broke the spell. Across the ground from near bushes a strange, dog-like greyish creature came stealthily. Startled, more timid than the bird, I

turned aside to see what this new-comer, a badger, intended. He abruptly disappeared. Making a false step on dry litter, I disturbed the singer, who fluttered from his perch, but only to the distance of a few feet, and then resumed the song. Dawn was approaching; the chill of the morning began to be felt; we were five miles from home, and had to go. Since then, ten years have flown; and the bird has probably passed to the silence in which his brilliant notes were so quickly lost; yet, if in his haunt live some descendants of that song, he is not wholly dead, but in part lives on, gladdening successive wanderers thither in the spring.[1]

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Love may be the key-note of the nightingale and

[1] It may be worth writing that exactly four years after hearing this bird, I visited the same spot with the friend who had previously accompanied me. We found a nightingale singing magnificently within six feet of the position occupied by the bird just described. My friend remarked that the singer was uttering exactly the same song that our former entertainer had given; and at that moment I was about to make the same observation, having only been delayed in so doing by the thought that my friend, who was a less enthusiastic student of bird-song, might be sceptical of the statement. My friend was Mr. J. F. Hooper, of Upton St. Leonards, and Gloucester.

woodwren; but we must not therefore conclude that it is the inspiring emotion in all bird-song, as so many poets and kindly observers would suggest; on the contrary, birds may make very pleasant sounds when perpetrating some very unkind deeds. There are many of their cries which seem to have no especial meaning, either of love or defiance, such, for instance, as the cooing of a dove—a soothing, love-like note which, like the ordinary chirping of a sparrow, or the fuller strain of a bunting, may charitably be ascribed to the tenderer emotion. In a few cases the combativeness of a bird is well suggested by its cry; as may be noticed in the common fowl, whose crowing is as defiant as a bugle blast. The shriek of the woodland jay, also, is very expressive. These sounds, however, do not represent the greatest intensity of vindictiveness; to hear such, we must listen to fighting birds; and then, sometimes, we shall hear them sing sweetly! If they were merely engaging in a contest of musical ability, we might still credit them with some sort of gentleness expressed in song; but when we see the rivals make fierce onslaughts upon each other, pecking vigorously at

eyes and neck, and one finally holding the other down and trying to kill him outright, we abandon the idea of peaceable poets, and realise that the creatures are little murderers, and nothing else.

And it is often the seemingly most harmless birds that do this thing. We see the wee wren mount a hedge and sing his sprightly strain, which seems to be the spontaneous outpouring of joy. Farther along the fence another wren mounts to the top, perks his tail, and utters a similar lively tune. Number one flies a little way towards number two, and sings again. Here, then, is a pleasing sylvan duetto! Number two comes nearer; and soon the birds meet—and fight furiously. Clinging to each other and pecking their hardest, they tumble to the bottom of the hedge, still holding on, and rolling over and over on the ground, lucky, indeed, to be watched by a man and not by a cat. But through the disturbance can be heard little snatches of song. You stoop to pick up the birds; and then they separate; but only to the distance of a yard or two; and then each sings as loudly as he can. He seems to sing exactly the same song that you so often hear in the spring—

and so it is. But, a few seconds later, the birds have met again, and are fighting as furiously as before. When one is worsted and tries to get away, the other follows mercilessly, intent on "pecking him out"; yet this bloodthirsty pursuer constantly renews his accustomed merry strain. So much for the song of the wren!

But, instead of a wren, the sprightly robin may be under observation. If a singing robin be watched, and especially in autumn, he will be seen to attack any other singing robin that may be near; in fact, one never sees two robins singing amicably very near each other. And it is curious how obviously the song of one will irritate another. First, they sing alternately, as though in answer to each other; but very soon they have met, not vigorously attacking each other, but hopping around and singing rather acute notes. And at this moment we may gain a notion of the use of the red on the breast of the bird, namely, that its purpose is to some extent to frighten an adversary; for if these rivals be closely observed it will be seen that they not only keep their breasts towards each other, but the feathers of the breast

are spread or raised in such a way that the red area appears as large as is possible ; and in profile it will be seen that the outside feathers are clearly raised or thrust forward. All the while the birds are twittering, though they may not fight ; and sometimes they do not actually come to blows. On these more peaceful occasions it has always seemed to me that the bird with the reddest breast drove off the other. One notable case was the pacific victory in this way attained by a fresh robin in my garden, from which he drove the former, but less red, tenant. In autumn, however, the battles between robins are strenuous, if not bloody. I have seen four fighting together ; and one very wet day there were three quite dabbled in mud, so that they could hardly fly at all, yet still fighting—and singing !

The meek little hedge-sparrow, seemingly so inoffensive, yet often fights to win a mate ; and when fighting it twitters. The willow wren sings its ordinary song when about to attack a rival. I remember a prominent instance of its pugnacity when, years ago, several were singing and fighting in a thicket, to which I went with a catapult to

obtain one for stuffing. One I barbarously shot while it was singing; and it fell, but shortly rose again, its thigh only being broken; and while clinging on a branch, with the fractured limb hanging loose, it again sang its song, though in the middle of the strain another bird of the same kind attacked it. I was then fortunately able to kill it outright—and have killed none since. The chiffchaff does not sing his ordinary song when fighting. I have often seen the nightingale fighting, but never singing at that time.

Finches and buntings commonly twitter in combat; and the chaffinch constantly utters his well-known cry "tink" or "fink." The greenfinch utters a low rough cry, which may be suggested as "gup, gup, gup;" and the common sparrow gives a similar cry not only when actually fighting but also before, as a warning or threat. The sparrow is, however, one of the most silent of fighters, notwithstanding that noisy clustering to which we are all so accustomed, whether in town or country, but which is, nevertheless, not an incident of combat, but an affair of love. It will always be found that these assemblies consist of

two or more males around one female, to whom they are paying addresses, and from whom they often receive more pecks than call-notes. Indeed, she threatens them all the time. Finally, she is left with only one attendant, who hops around her, and is chased by her, apparently with much satisfaction to himself. When male sparrows fight they are generally quiet and earnest, until one gets hold of the other firmly, when some screaming may be heard.

Many species give the full song during combat. I have heard the full song of the tree-pipit given by one furiously attacking another. When first seen the birds were fighting in flight. They fell to the ground together ; and in this position and when I was not more than two yards distant, the song was given, including the final long-drawn "whee whee whee," which is generally given when the bird is descending on outstretched motionless wings, and never from a perch.

The wagtails, when driving rival trespassers from their favourite spots, utter what seem to be the ordinary notes ; and the same thing happens with the lark. The latter, however, sometimes

sings a full song when resenting the approach of a neighbour; and then some very pretty hawk-like mounting and stooping may be observed, but accompanied by the birds' usual music.

Thus in many species the tone of love may be also the tone of hate; and our only means to ascertain what is intended is to take into consideration the general behaviour of the birds at that time. And even then we may err; for when a melodious singer is perched in a tree or poised on the wing, we cannot tell whether he is addressing a mate or an enemy. Unfortunately, it is not alone among birds that the same tone is employed towards both of these objects.

Some singers, as the robin and the thrush, sing when fighting with others of their own species, but not when in conflict with other birds—which seems to imply that the song serves a useful purpose in the former case and not in the latter; the exclamations being known to be understood in the one, not in the other. And there are many which do not sing at all in combat. The starling is one of these; it cackles when fighting, of whatever nature the opponent may be; and this is

especially to be observed in autumn, when the birds are striving for the possession of suitable nooks for sleeping in during winter. The starling, however, sings a song to his mate, whom he will often fan with the wings at that time. The blackbird never degrades his sonorous tone to the language of conflict, but makes a clicking sound when fighting. His near relative, the thrush, however, never fights another thrush without twittering all the while; yet, when his nest is threatened, say, by a jay or jackdaw, he does not twitter at all, but utters a great outcry, different from that employed at any other time, and resembling, more than anything else, the fierce rattling screech of the missel-thrush.

It is not mere fear that makes the fighting bird sing, for each of those above-named has a special note of alarm, which is readily given; so we are forced to conclude that while the starling, blackbird, nightingale, chaffinch, and some others, may be pouring out the truest love-notes, the robin, thrush, and willow-wren, though also singing sweetly, may be using very vulgar language—the "Billingsgate" of birds.

CHAPTER V

JUNE JOYS

THE promise of May, written in beauty, proclaimed in melody, and breathed in sweetness, is partly fulfilled in June, when the great work of the year already approaches completeness. The voices lately raised in tuneful declamation are hushed in domestic cares; the gaudy petals are falling; and on every side are indications of the development of a new generation of animal and vegetable life. On every side June reveals the devotion and skill of the parent. The wayside hedges form long streets of little homes, tenanted with groups of hopeful and hungry young things, which older ones are tending, tenderly, gently, in fulfilment of instinctive requirements. The passionate songs of May seemed

to foretell, in the case of birds at least, the devotion of the later season ; and while man looks on, he may perhaps wonder, indeed, how it is that in the realm of birds and beasts he can so rarely discover a family in which the higher teachings of instinct have not been implicitly obeyed. Where shall he find a nest needlessly forsaken, young starved by parents, or adult creatures lying senseless whilst their little ones are crying for food? The May song may be dead, and in its stead may be heard the harsh note of warning ; but the little hero is still there, no longer daring to be conspicuous for sake of song, but fearing not to rate and scold even the arch-enemy, man himself, should he threaten the helpless young. Human affairs are slower than this ; yet the transitions in bird-life are out-distanced in the region of insects, in which whole generations may have been born, and have bred and died, within the few short weeks of the nightingale's song.

Does man need a stimulus for work at this season, or does he need a consolation? Let him consider the toils and cares of one and all of the

creatures around him, from the stickleback in the stream to the swift in the sky. Who undergoes such furious exertion as the starling, which must make frantic effort to obtain enough for its clamorous and avid young? No "eight-hours' day" for him, but one of full sixteen hours! Sometimes on a hot day, quite overcome with fatigue, the bird takes a short rest, and, with wide-opened beak, regains his panting breath, only to immediately resume, perhaps more ardently than before, the stern, fatal chase for food. In addition to flying at brief intervals to the nest, the bird must travel fast and far afoot, covering in this way perhaps a total distance of a couple of miles per diem, and, after each "sprint" on the grass, some heavy worm-heap must be knocked aside and the hole below investigated. Frequently a tough, wriggling worm has to be pulled out, though resisting so vigorously that it prefers to be torn asunder rather than wholly extracted. Any one who has pulled worms from their holes knows that their power of resistance is considerable, and that great care is necessary to extract them entire. When his

young are about to try their wings for the first time, the starling is pulling worms all day. But, while vigorously working, he must also keep a sharp look-out for the arrival of predacious beast or bird. Near a hedge, the weasel may spring on him; and in the open he must listen for the little birds' cries that tell of a coming hawk. Not only does he understand the meaning of those cries, but other birds know well enough the cause of his own signal announcing the same event. In order to save time the starling collects as many worms and insects as can be carried at one time, before hastening to the nest; but, since he cannot work effectively at a worm-hole when thus encumbered, he lays down the prizes when a promising heap is reached, and takes them up again when a critical survey has been made. He must not run far from the morsels, however, or another starling will appropriate them. He quite appreciates this risk at its true value, and, though readily quitting his treasures and making a survey at the radius of some feet from it when a thief is not near, when a raid is to be feared he keeps them almost within reach of his bill, and only

lays them down for the moment of probing the ground. At last he can carry no more with them, and then he is off to the nest in the barn-roof or the hollow tree. In the evening it is obvious that he is almost too tired to fly at all. The young are fed wholly with insects and worms, and thus occasion an enormous destruction of these creatures.

Two curious incidents in the life-history of the starling are the late and simultaneous nesting of the birds, and the wet weather which (within my experience of some twenty years of observation) always prevails for a few days when the young are almost ready to leave the nests.

Apparently there is no reason why the starling should not nest as early as the blackbird and thrush, which, having commenced singing much later in the preceding year (or the current one), build much earlier. Possibly the nesting-time is determined by the appearance of some particular form of insect-life; or possibly the young have a better chance if born in May. In any case, they are not abroad more than a few days before the middle of that month.

Nesting-birds are exposed to many dangers. A storm may overturn the home. In the country, weasels and stoats, finding nests, kill all the living contents. It is possible, however, that these predacious beasts prefer the young of grain-eating birds to those of insect-eaters. A weasel kept by my brother would not touch a titmouse, though a house-sparrow or a young pigeon would be eagerly devoured. A tame owl exhibited the same preference, and a kestrel would not eat a mole, though it eagerly devoured a mouse or a piece of a rat.

But the cat is the worst enemy of the garden bird. In order to keep cats from nests in trees, fringes of wire netting should be placed around the stems, extending to the distance of a couple of feet from the wood, and at a height of four or five feet from the ground. If tied tightly to the stem this will keep down any cat. But the young will have to take their chance unaided when they leave the nest. In this respect the more desirable species, the shade-loving insectivores, are the more unfortunate. Such are the robins, hedge-sparrows, wrens, and thrushes; the finches and

grain-eaters, such as sparrows and greenfinches, are led to more open ground, with a better chance of escape, at least from this enemy.

It is the care of the nest and young which silences so many sweet voices in June, and compels even the finest singers, like human vocalists in similar circumstances, to retire to domestic mediocrity. But in more than one species the love of song, doubtless at first due to courtship, seems to survive it, and to be almost as much a source of artistic inspiration as it is in man himself. The starling, robin, and skylark afford familiar instances of artistic song produced when courtship has long ceased, and embellished with all the rich variety of tone and music distinguishing the species. In the starling the variations are chiefly due to pure mimicry; with robin and skylark mimicry is a subordinate incident. Mr. Edmund Selous relates how the oyster-catcher, when courting, seems to be so intent upon its vocal performances that these apparently become of more importance to it than the emotion which caused them. "I suggest that this may be sometimes actually the case in Nature; that a movement or a

note, or series of notes, may become itself so all-absorbing as to demand the whole consciousness of the bird, who, in performing it, forgets the why and wherefore of the performance. Let this process once commence, and certain movements—antics—performed at first with a definite object, might be gone through at last for themselves alone, the object having become now merely to perform them" ("Bird Watching," p. 93). This gives us a key to the mystery of vocal triumphs in a song-bird which seems not to be actuated by sexual instinct at the time: it is a sound argument for deeming him an artist following his art for its own sake. The varying degrees of originality and skill in the performance, in the different species, can only be detected by very careful and close observation, but the mere duration of the effort is easily ascertained. Even this simple observation may yield a surprising result. We are all familiar with the song of the skylark, and if in spring one of the birds be timed, it will be found to sing, generally, from three to six minutes without a break. In June the song is less practised, except in that storm of melody which at dawn fills

the idle hour preceding the feeding of the young, or, at evening, marks the cessation of daily labours. At that period the songs are also generally less sustained, and yet, even as late as at the end of July, I heard a skylark, whose particular excellence of voice attracted notice, sing from 5.44 to 6.13 a.m.—29 minutes. He was singing nearly over my residence, and, watch in hand, I stood under him, while the minutes grew, from first to last, into a "record"—so far as I know—of a wild lark's vocal endurance. From first to last his rich variety of tone, his vivid changes from long, flowing strains to impetuous passages of crowded notes, and back to plaintive calls; his abrupt transitions from pure music to perfect reproductions of some familiar cries of other birds were all sustained without a pause for deliberation, without a rest from the long effort of the hovering wings; and, witnessing this glorious improvisation, this tireless impulse, one realised that here was an intelligent and brilliant songster, with mind in a tumult of melodious themes, and with voice controlled to pour them in one stream of beautiful sounds from the sky—not an unskilled automaton,

but a passionate being intent on the study of his art and exulting in its triumph.

The instinctive love for the young is doubtless in part originated by the love for the mate. In the animal world the latter sentiment may be considered as caused by grace of form and colouring, and not by territorial possessions nor by gold. Man has often ignored the natural association of affinities, and has mated and unmated at will the subservient animals. This seems to have caused a moral collapse in at least one of them—the homing-pigeon. The wild variety pairs for life, but the Antwerp homer, which has long been bred for flight, lacks this pristine virtue, and an old male is never tired of "showing-off" to any young female of the species near him. Sometimes he leads her quite astray; yet, even in this depth of depravity he very rarely accords her the compliment he is ready to pay to his own wife, by feeding her.

It is regrettable that human love for animals so often takes the form of a curse; and, when one thinks of the long record of human affection for the weaker tenants of this fair earth; the hunting,

spearing, poisoning, and trapping consequent on human interest and affection, it seems that the time has arrived for us to try to do something to balance this long account. For now we begin to dare to think that many of these lower animals that we have hunted and imprisoned without hope of release more kind than death, are sentient and tender beings, not thinking nor acting in just the same way that we do, but still intelligent and passionate, with little hopes and fears, loves and hates, of their own. The thought of it all suggests how immense is the crime of man in the face of Nature.

June is the month in which we most often rob the birds of their young. The schoolboy finds a nest, of blackbird, thrush, or finch, or it maybe that of hawk or owl, and triumphantly carries off one or more of the young to his home, where they are offered strange and injurious foods. The pater suggests one substance, the mater another, and the filius a third ; and the wonder is that the fledgelings outlive that day. At dawn the urchin rises to feed them ; but he is away all day at school, and on his return in the afternoon the little birds seem not

quite so vigorous. Next morning, perhaps, the boy oversleeps himself, and does not hear plaintive voices calling for a poor, forlorn mother, who at that very time is disconsolately crying for them in the accustomed shade. The story is soon ended:

THE SCHOOLBOY'S VICTIMS.

one or more stiff little bodies, fluffy indeed, but somewhat dirty, are flung into the dustbin; and the boy seeks another nest.

Is this annual tale of stolen birds a result of human affection extending beyond humankind?

Or is it that we recognise in the bird a being superior, in one feature, to ourselves, and so feel the greater triumph in possessing it?

However this may be, it is certain that of all the powers possessed by animals, flight is the most difficult of human attainment, and yet the most desired by man. The power of the wing is to him a source of ceaseless wonder and enjoyment. Few of us observe without interest a great bird, swan or heron, soaring its rapid way across the sky. People find pleasure in watching the mad rushing of the swift, the noisy gambols of rooks, or even the comparatively cumbrous evolutions of the domestic pigeon. But it is when some long-winged hawk glides athwart us, seemingly impelled by spiritual rather than material forces, that we realise how lovely flight may be. The nearer the better, and even at a distance, when the bird is poised above some barren hillside, it is often the most admirable creature to be seen. Always does that even flight give pleasure by its beauty and inspire respect by its strength; it is the motion of a thing that has conquered the wind and feels not the chain of gravity. All this is

doubly suggested when the dominant bird arrives in contrast with less agile species—when, say, we have traversed a woodland, and noted the gluttonous wood-pigeon returning from a feast, swelled and unwieldy; the jay, with awkward flap of wing; the magpie, seemingly impeded by an exaggerated tail; when, after these have passed, suddenly a bird shoots aloft from a storm-scathed tree, and circles overhead, and strides, with giant stroke of wing, into the nothingness of distance—a falcon or a hobby; or, swings up to a little height, and hovering here and there, is revealed as a kestrel looking for his prey. This hawk is not only beautiful, but is man's helper, though the gamekeeper is ever ready to chronicle his theft (not often committed) of a young bird from the coop, and to take a full revenge with the gun. The noxious field-mouse, the chafer, grasshoppers, and similar creatures, are his quest; yet when he sees a small bird in difficulties, the falcon nature asserts itself, whereby the human bird-catchers often take this swifter slayer in their toils. They are no more merciful than the gamekeepers, confusing it with the sparrow-hawk. The

latter is a crow-pinioned bird, impetuous and brave indeed, but lacking the instinctive skill of the sharp-winged falcon to kill its prey immediately on capture. It is also somewhat stealthy, and it often approaches the intended victim under cover of a wood or a hedge, till near enough for a successful rush. The kestrel usually soars aloft, patiently scanning the fields below. In June the wants of the young severely tax the powers of this hawk, whose parental instincts are extraordinarily prominent and gentle; and then his vigil is continued at evening, sometimes quite into the dusk.

At that quiet hour he is, perhaps, the most noticeable when, above some sloping meadow or rough bank, he seems almost to lie still on the breeze, while pausing over the tufty grasses where field-mice dwell. But then, soaring barely higher than the tree-tops, he is most often within danger of the keeper's gun. The bird knows well the purpose of the straight, bare weapon, whose glint from the setting sun is perceived even through the tangle of the hedge. He has often seen it levelled with fatal effect by the man now crouching there.

More than once, in former days, its swift messengers have screamed a warning, while below gleamed its lightning, and its thunder roared through the woods. But to-day the young have received nearly all the food obtained; the tired parent is hungry; this is the time for voles to be astir; so the bird merely swings away on his ready wing to a safer distance, and resumes the silent search. Alas! that the gun so often strikes so fair a mark! And alas! that its harmonious plumage should so often be ruined, and its freedom so cruelly restrained, in the harsh confinement of a cage, where it is fed on unsuitable if not poisonous remains, and the range of its keen sight restricted to the dingy horrors of a city bird-shop! Strange it is how man, who strives for freedom, thus can terminate the triumph of the wing.

The fate of the shot hawk is less sad than that of one encaged; for the latter dies hard, and not till after many days of hunger and miserable effort to escape will the usual protracted withering in consumption come to an end. To a bird reared by hand the cage may be less irksome; yet the

possession of such a prisoner is not the less incompatible with that love for animals so often attributed to persons who hold many of them captive. The naturalist often tries to pierce the mysteries of animal life; but how many have tried to lift the veil from the miseries of their silent captives who are waiting, motionless, silently, and oh! so patiently, for the nothingness of death?

Yet all these poor victims are possible friends; nay, the very wild ones themselves would be such, would we but let them.

An ornithologist bought a brown owl that had been reared in a cage. He fed it up, tamed it, let it out in his garden, and had it with him there or elsewhere for years. It even preferred to stay with him instead of going off with a mate, who came from the woods to woo it.

It was a sight of that bird in the twilight, descending from upper darkness to settle near her owner when he called, and the sound of her voice in ready response to his, that first made me realise how many opportunities of doing something of the same kind with a pet bird had been lost.

A few years later I was at a country house, and

admiring a lovely male kestrel-hawk kept in a large aviary. He was in perfect plumage, and, within the narrow limits available, flew delightfully. He darted from the back of the room full speed at the wire door, and, when within a foot or so of it, by a marvellous turn of wing he turned back without touching, and regained the perch. One instant he seemed to be coming at full speed; the next he was back again, and the onlooker had a vision of beautiful wings spread for a moment before him, but gone instantly.

"We have another, a female bird," said the owner, "and we don't know what to do with her, for if put with this one she might be killed."

"You should see her fight!" said one of the sons of the house, adding: "We make her fight with a broom."

In a deep but narrow cage faced with wire a bird was shrieking madly and clinging to the bars, up and down which it ran in the manner of a parrot. It had no long feather in wings or tail; all of them had been broken short off by contact with the bars. It had never flown. This was the female kestrel; and she became mine.

A transit by rail seemed not to have improved her temper, for, when the box was opened, she attacked my gloved hand with bill and feet at once, shrieking all the while, and generally behaving diabolically.

She was placed in a large circular cage of wire netting, in which the rough branch of a tree offered a natural perch. The openings in the wire were only an inch across, yet she could easily snatch with her foot a piece of meat held three or four inches from it, though, in order to do this, she had to double the claws of one foot into a little fist, and thrust this through some selected aperture much lower than the line of sight. The rapidity and accuracy of the action indicated a marvellously acute judgment of distance. Some tame owls had formerly exhibited the same skill, which is doubtless prevalent among birds accustomed, even when flying at their utmost speed, to capture prey by their feet. Later, she was taken from the cage, and placed in jesses and leash. Jesses are little straps noosed on the legs of a hawk in such a way that they cannot tighten, nor be undone by the bird; and they are joined by a swivel to the leash.

Secured thus to a wooden platform in a summer-house, the bird had more room, and could not further damage her feathers. She could also be approached and handled the more easily, and began to be tame, but, being visited for only a short time daily, this change was a slow one.

Sometimes at evening she seemed inclined to use her wings in a particular manner common to her race, and at those moments her whole attitude was changed. When all had grown quiet, and she realised that any one near did not necessarily mean an attack, she would perch on a block at the front of the platform, and gaze intently at a distant hillside. Then, if a breeze rustled, she would cause her plumage to lie close and tight, would raise her head, and, after a moment, slightly move outward the front parts of the wings. But even this action seemed to disturb her reverie, for, with a disconsolate shake of the pinions, she would withdraw the head against the shoulders and resume the former position; and then she never omitted to pluck at the leathern shackles on her legs, though at other times they would be unnoticed for an hour or more. Again and again, and especi-

ally when a gust disturbed the leaves on the trees (though unfelt in the summer-house) the same movements were performed, the wings being moved more and more, until, after a half-hour or more had passed, they would be fully extended each time. Then would she fan them, silently and weirdly, in the fading light, while all her attention seemed to be occupied by that hillside far away. I do not know whether she was thinking, or of what; but she looked as though she were in a daydream, and in it were winging her airy path above the slope, till something dispelled the vision; and then she invariably plucked the jesses.

A post a few feet long, surmounted by an oval board on which the jesses would not catch, was set up for her on the lawn. At the base a weighted cord was loosely attached. Tethered here, the bird was safe from cats, and could fly to the distance of several yards without the shock of a too-sudden check. Supplied with plenty of fresh food (well-dusted in feathers or fur) she was in excellent health, and, before August, she had moulted out every feather and was arrayed in lovely plumes, without a flaw or a stain.

Daily exercised in flying for food, which was swung for her on a string, she soon became very adroit in use both of wings and feet, and grew so tame that she would come to the hand at any time, even when holding food in the foot. And in the dark, if I came near the summer-house, she would fly to the limit of the tether, all the while uttering the same little cry which was given when in daylight she perched on the glove and pecked it prettily. In the autumn the jesses were slipped every day, and the bird was flown free. Then her opportunities of swift and dexterous flight were increased, and she took full advantage of them; indeed, it was marvellous how certainly she seized the food in the space of a few moments, try how I would to whirl it out of reach. Round and round she flew, with even glide or rapid beat; and with impetuous turnings, pounces and rushes, she darted exactly at the appropriate moment to the lure, sometimes fairly hurling herself down, and with such abandon that she reached the ground violently and fell with wings and tail spread, their symmetry of form and colour the clearer in contrast with the grass; but, surely enough, with

that piece of meat in her unerring foot. And yet she looked even prettier playing about the little platform, snatching at the padded edges, and then crooning, all ruffled, as though she held a mouse. And if her talons were sharp, and her grasp fierce enough to sometimes pierce a stout glove, her soft brown eyes had not the less in their clear depth somewhat telling of gentler instincts.

She would soon have been fit for total freedom, and an accident conferred this sooner than was intended. One day, when especially daring, she darted so impetuously at the lure as to alight in some ivy at the foot of a wall. At that moment a stranger approached, and the bird, quick to take alarm, sprang up and threw herself against the wire fence above. Now wildly scared, she made an upward rush that revealed for the first time the surrounding busy town. More and more alarmed, she rose high in air, and essayed (though at first very unsteadily) the hitherto untried power of soaring. The fresh wind bore her gradually away toward the hillside which had so often attracted her gaze; and thus, steadily diminishing to a

speck in the sky, she disappeared. On several successive days she returned to the town, but no one was near to lure her down. Then there was a great storm, and after a tempestuous day I saw her in the gloaming, passing low over the houses, and tossing wearily against the wind. That night the rain fell in torrents; but on the following morning she was seen about the fields by some boys, who nearly caught her. Ten days later she was reported from a neighbouring woodland, and on the next evening I saw her there, flying from tree to tree in the recognisable manner of a liberated captive. At this time she no doubt fed mostly on grasshoppers and beetles, with an occasional mouse or sparrow. Some days later I watched her through the telescope as she sat at the side of a wood, contentedly preening in the rays of the setting sun. When the orb had disappeared, she stretched her wings and flew to a near tree in the open. Then once more she launched forth, and commenced her regular evening journey across the valley there, to a favourite place of rest. With seemingly the speed of a wild hawk she swept onward, turning slightly to face the gusty breeze,

and swinging over each swell with glorious strength as her long wings drove through the current; farther and farther into the haze; while fainter grew her dim, vibrating outline, till it vanished in the dark shelter of a clump of ivied trees.

So the bird with the soft brown eye and rapid wing was free at last. The valleys had become her playground, the distant hills her own. Now through the open doorway of the summer-house the robin might pass fearless. I saw him alight, with a merry, rattling cry, on the favourite perch, where the old leash lay unstirred at his feet. The sparrow there can find a fluffy feather for his winter nest; for the bird of prey has gone. The long brown wings are no more vainly upraised in the still air of a prison; far aloft they cut the sky. On their careless spread she floats serene along the blue avenues of the clouds, while below, to rival her speed, the lords of earth must crowd into the maw of that huge mechanical serpent, whose iron head is filled with a hell of fire and steam, and whose shriek and roar may be heard even by her among the snowy castles of the sky. Those unerring feet have found a kindlier perch than the

gloved hand, though it brought welcome food. For her, safe within the dusky mantle of an ivied tree, the mystery of night will have no terror; and at dawn her clear sight, unchecked by the limits of a window, can comprehend the landscape, what time the drowsy owls retire and waking songbirds hail the day.

From a tree-top will this freed slave watch the sunrise and mark the waking of life around, while shadows are fading up the valley to the east; and when she spreads her wings on the cradling air, range beyond range of hills will reveal their bold outlines.

From a sunny pasture below sounds the tinkle of the sheep-bell, where the leader of a flock passes from clump to clump of tufty grass. There also the little meadow-vole is nibbling, and deems himself concealed by the trellis of dead stems that shade the glare of the sunshine. But from the sky an eye of clearest brown has looked through the screen. There is a momentary poise of the pointed wings while an eager bird steadies herself for one more searching glance. The wings are closed, and down drops the bird to fulfil her

mission. The mouse still stirs and nibbles, unconscious of danger; but suddenly a swift foot armed with sharp claws snatches him to instant death. Up swings the bird, with the little burden half-hidden in her under-plumage—up to the gaunt arm of a perishing tree; and there she has her meal. Let us not presume to condemn that feast, which the universal mother has given to one of her children, strengthening those marvellous engines of speed, and energising those highly specialised powers of sight and skill which enable the kestrel to survive.

My lost friend lived for a while in a little valley called "Horns" not far from the town, afterwards in a wilder spot, and later on a great arm of the Cotteswolds, commanding glorious views of the Severn valley.[1] I often looked for her at Horns, and then sometimes saw a male kestrel which had lived there for some time. In the early mornings in November he could be seen darting forth for

[1] During six years this hawk came occasionally to the garden where she was trained—the only kestrel that ever did so. Her portrait (from life) appears in the frontispiece, sketched by my sister, Miss Lucy C. Witchell.

the day's hunt, speeding along the hedgerows in search of mice which were late abroad. Often was he on the near hills. He was a lovely adult bird, with ashen-grey on the head, and richly-chequered brown back; his wings long and pointed, and their glide a poem of motion. Once he was surprised at a very short distance over the crest of a hill, and while darting forth, with all his symmetry in clear relief, he turned his head to see what was threatened. Once he was seen to catch a sparrow. When he heard the mock shriek with which the trained bird had been called, he came swirling down the valley, doubtless eager to drive away some fancied trespasser of the same species.

One day in the following spring a young fellow called with a bird for sale. It was in a blackbird's wicker cage, and very dirty. It looked like a partridge; a little round bird with a round head and no tail. But the head was a hawk's head; the legs and feet were those of a hawk; and the nape of the neck was ashen-grey. It was hungry, famishing, for it called out for food.

"What on earth is that?" said I.

"A hawk, sir."

"Where are its wings and tail, then?"

"I pulled 'em out, sir."

"When did you catch it?"

"A week ago."

"Where?"

"At Horns."

This was the lovely bird of Horns; its plumage dirty, its feet clogged, its wings and tail robbed of their long plumes; a poor, piteous, tortured thing. I was about to leave England; I could not keep the bird, and knew none who would undertake that which I might otherwise have done. So I refused to buy it, and the fellow took it away in the dirty cage to die in misery.

Happier was the fate of a kestrel purchased from Cheltenham—a very large bird, but so thin that her breast-bone felt like a piece of cardboard. She had been caught on the hills near that town, and had no doubt soared over them year by year. One wing was still sticky with birdlime; but diligent washing partly removed this disfigurement. There was also another kestrel, caught in Surrey, which was on the way to a London bird-shop, where already there was one hung "high in

the heat of the gas"—as was said by a kind man who bought the later victim and sold her to me. Both birds became quite tame. They were flown on a weighted cord, and were very vigorous.

They were both set free on the same sunny day in spring. The Cheltenham bird at once rose, greatly to the consternation of the garden sparrows and starlings; and she went off at speed towards her former haunt. The Surrey bird had been provided with some fresh tail-feathers in place of the parts broken, and was therefore as well plumed as when caught. She rose slowly, and drifted with the breeze, seeming not to know the district. Watched through a telescope, she could be seen for three miles or more. She drifted on, but was rising all the while, and when last seen she was still ascending, though then quite a mile up. Perhaps she was seeking to discover some known landmark, or she may have been merely indulging to the full the pride of her freed wings.

CHAPTER VI

CONCERNING SWIFTS

BIRDS have become the music-makers of Nature; but this (no sudden acquirement, for their relations the batrachians are vocal) is not a vital characteristic, nor that which most distinguishes our feathered friends. The bird is, before aught else, a flying animal; and this fact properly induced the earlier naturalists to place first in their classification the best fliers, the birds of prey. Later investigators have placed the singers, the thrushes, in the premier position. But the great men of guns, knives, wires, and glass eyes, frantic to differentiate minutely the most trivial variations of form, and to demonstrate with the accuracy of a shore-line the limitations of the range of victims, omitted, even for generations, to

observe some of the most commonplace, yet highly interesting, facts in the life-habits of birds. Did one of them trouble himself to ascertain the meaning of the noisy combats of the sparrows that chirped around his house? Did one recognise the wonderful mimicry of the wild thrush? There is no sign of it in their books. I believe it was left to myself to indicate that habit of the sparrow, and to direct attention to that method of the thrush. In his book "Summer Studies of Birds," Mr. Warde Fowler jeered; but he has since made amends in *Nature*, and admitted that I had led him to discover that the thrush and robin imitated to an extent that he had not even suspected.

The swift, among other victims, received attention from the ornithologist. Its body is minutely described in the books, and its effigy is in all collections: its eggs are clutched by the felon hand of every collector; yet, one of its most interesting habits, nay, one of the most extraordinary in the whole region of ornithology, has been overlooked, though it could apparently have been witnessed in every habitat of the bird within our shores. Curiously enough, this habit was first observed at

THE GAMEKEEPER'S WORK.

about the same date by three people in different parts of England—not museum naturalists, but mere garden observers.

On the evening of the 10th of June, 1887 (a very fine and clear evening), I was watching swifts from a hillside garden at Stroud, in Gloucestershire. The swift is a particularly attractive object when viewed from such a position, whence its splendid flight all about the sky can be well observed, and also its grand swooping at evening, and, most marvellous, its night-flight into the zenith. The falcon-like stooping is probably the means whereby the males drive their mates to nest. At sunset or thereabouts, in June, the incident may constantly be witnessed. The pursuing birds chase particular individuals, presumably their mates. The pursued are always intent on feeding, whence we may suppose that they are birds that have been brooding all day and are out for a little relaxation; or that they are securing a good supper before retiring to the eggs for the night. The latter supposition is doubtless the correct one. In this "driving to nest" the male rises to the height of a hundred feet or more

above the other, and swoops at her. She descends, and, as the aggressor approaches, both birds take a more vertical direction, with the result that they swoop at a great pace, and their swishing rush through the air can be heard at some distance. The male seems never to actually strike the female, but swings up from the attack, and continues to mount till far aloft. The poor female bird rushes along at a lower level, turning this way and that to snatch her meal ; but the male is following, and immediately renews the attack. This habit of the birds may account for the worn or bitten condition of the tips of the tails of swifts which, on a few occasions, I lifted off the nest.

On the particular evening in question, swifts were chasing each other noisily, as is their wont ; and I, tired and lazy, sat watching them. At the first sign of dusk a great mob of them began to ascend, and continued their gambols in mid-air. But they gradually rose higher, until at last the query arose in the mind : when would they come down to their nests ? But the precious minutes of daylight were rapidly drawing to a close ; and yet the birds stayed up, and went higher. Then

at last, in the clear sky, they vanished upward. When would they come down? Their nesting-places were all around. Soon they would come squeaking down, and rush into their accustomed recesses under the tiles. But they did not. The air was still. There was no sound of a bird, nor sign of one. The bats were out, flitting where the swifts had been. The dusk deepened into the heavier shade of the summer night. And where were the swifts? Up, up, aloft; beyond the dark shadow of the horizon; beyond the last flecks of cloud; up in the serene evening light of some vast altitude.

On the succeeding evenings I watched again, and on the 19th and 21st of June saw the group of swifts end their play by going up with heads to the wind, almost in line, and passing clear out of sight in the zenith. In the autumn of that year Mr. Aubrey Edwards, of Orleton, Herefordshire, recorded in *Nature* that he had seen much the same incidents that I have here described and at an earlier date. I recorded in the *Field* what I had seen, and nearly every year since then I have mentioned the matter in that journal, with a note

of some observations made. On more than one occasion a group of swifts, when nearly vanished overhead, would be joined by another group, coming I knew not whence, but finally ascending with the others.

In 1891 Mr. Edwards published in *Nature Notes* a long and very interesting account of his experiences with the swifts. No other ornithologist seems to have so closely observed the bird. He says :—

"About seventy or eighty swifts build in the church, and I have watched them for well-nigh twenty years. . . . About forty, as nearly as I can guess, every fine night, gather above the church and slowly ascend, wheeling 'in and out and round about' and screaming the whole time. When they have reached a certain height they stop wheeling *inter se* and point their heads all the same way, continuing to soar in wide circles until they are lost to sight. I have good sight, and on a clear July evening, at 9.15, I have seen these high-flying swifts like a little cloud, when they were so high that I could not distinguish the individuals. At about the middle of May they go up at 8.35, and gradually get later until the longest evenings, when they go up at 9.15; then they get earlier again till just before they leave, when they go up at 8.10.

"One night, having seen the swifts go up at 9.10, I sat on a tombstone under the south eaves of the church (where many nest) until 10.30. Two low-flying female swifts

were hawking for flies, but they went in before 9.20. Two also were out, but soon retired, on the north side of the church, where my father and brother kept watch alternately. Not one of the high-fliers came back. Many bats came out from under the eaves; I could see the moths and beetles against the sky; but those swifts stayed up aloft. On other nights we watched, but not quite continuously, until eleven o'clock, and satisfied ourselves that the swifts did not return."

In the same month of 1887, the late Mr. Douglas Brodie, of Croydon, also observed the night-flight of the swift, and afterwards wrote to the *Field* about it (*Field*, May 18, 1889). He noticed the peculiar quivering of the birds' wings during the ascent.

Probably the reason why this wonderful habit of the swift was so long overlooked may be found in the fact that it can only be observed at one particular time, and that five minutes earlier or later there is nothing of special interest to be observed.

After sunset the swifts continue for a while their noisy pursuit of each other about the level of the roofs; and presently the birds do the same thing at a slightly higher elevation, and traverse a wider area, so that they are often out of sight for

minutes together; and their return is first announced by the loud outcry, "Swee ree, swee ree ree."

At from thirty-five to forty minutes after sunset the noisy cluster of swifts flies at a considerable

SWIFTS GOING UP FOR THE NIGHT.

height above the houses, and often rises much higher, only to descend again. But soon they begin to make upward rushes which bring them to successively higher levels; and they do not return. They are now keeping fairly close

together, and their squeaking sounds the more distinct since other birds have retired for the night. Now they must be watched carefully, if indeed they can be seen at all; for they may wander out of sight across the sky before making the final ascent. Their wings have now a peculiar fluttering motion like those of an ascending lark; it is continuous, and the swifts, instead of wheeling round and round in a cluster, seem to prefer to lie head-to-wind. Against the loftiest white clouds their movements may yet be clearly traced, especially through a good glass. Up and up they go, fading smaller each moment, till even the power of the glass is overcome, and the tiny specks vanish for the night.

If you have been holding a glass to the eyes all this time you now drop your arms wearily enough, to find that the dusk has fallen; the bats are out, and the evening mist is rising, but the swifts must now be nearly on a level with those remote flecks of cloud, which, at an immense height, are yet snowy in the sunshine.

A writer in the *Field*, the redoubtable "Smooth-bore," threw out the suggestion that the swifts

might possibly meet and soar up for the purpose of travelling in company to some roost-place at a great elevation on a mountain, as appeared to be the case with a certain allied species in India; but it would seem that our birds go up sheer vertically or at any rate with no preference for any lateral direction. At the same time it certainly appears to me that swifts from outlying villages near Cheltenham join at evening the group over the larger town, and they may do the same thing in other districts.

The assembling of birds from a considerable area to roost together is a well-known incident, instances of which commonly occur in the case of rooks, starlings, and sparrows (near London, at least). And this habit was obviously a characteristic of the chimney swift of North America (*Hirundo pelasgia*), which I saw in Canada.

At Ottawa, a lovely half-barbarous, half-Parisian town, you can see in the daytime a few pairs of these birds, and, travelling by rail, one is seen occasionally if a sharp look-out is kept. Towards evening at Ottawa, however, you suddenly become aware that many of them are flying near the great

and splendid Houses of Parliament, which, standing on an elevation in the midst of large gardens, are at once the most conspicuous and beautiful buildings in all Canada. The cry of the bird is now often repeated. It consists of two or three repetitions of a sharp little note, very short, like the shortest note ever uttered by our swift. Presently another group of swifts joins that under observation, the size of which is thereby doubled; but a minute or so later another group arrives, then another, and so on, all coming from various points of the compass. Gradually the swarm of birds becomes immense, like a swarm of bees, but occupying very much more of the sky. They circle slowly round and round, chirping merrily, and the sound of their multitudinous voices is like the noise of a stiff breeze shaking the leaves of a grove of aspen poplars. The circle always turns in the same direction, and you notice that one side is lower than the other, and denser. It dips and envelopes the summit of a tower on one of the great buildings. Against the grated aperture in that tower the torrent breaks. The birds are there so thick, you can hardly see daylight

through the mass. They cannot all enter at the same time, so one part of the current deflects its course and passes upwards; two other streams pass aside; and a great many birds fall directly, and recover themselves as best they may. I tried again and again to estimate the number of birds, but could only imagine a number between four thousand and six thousand as applicable to them. Yet they all entered that grating before dusk, as, indeed, I had been informed would be the case.

A seemingly trustworthy official told me that the centre of the tower was simply banked with the swallow-like nests of the birds, which themselves blackened the walls.

One word as to the speed of the swift. The bird is supposed to be extraordinarily fast; and perhaps the reader would hardly credit the statement that it is not so fleet of wing as a wild-goose. Seemingly good observers often break loose into exaggeration when dealing with this bird's power of wing. A well-known writer, for instance, stated in the *Daily News* that it could fly at a speed of a hundred and fifty miles per hour, and swifter than a falcon. But one of Major Fisher's well-known

peregrine falcons, as he informed me, chased a swift all about the sky, going high over it repeatedly, and nearly catching it. I have seen a hobby falcon which was shot with a swift in his foot, which he had been seen by the shooter to kill but a few moments before. Not long since I was travelling by express train along a valley, there being a breeze blowing in the direction of our journey, but the swifts there, notwithstanding the assistance of the wind, never moved so fast as the train in the same direction. One May day, I saw a swift fighting with a house-sparrow for the possession of a desirable niche under the eaves of a thatched cottage. The sparrow was always quickest in taking possession; but the swift as surely pulled him out, and they fell from the hole together, sometimes almost reaching the ground before separating. The sparrow once chased the swift for a considerable distance, and it was amazing to observe that though the swift was certainly the faster, he was not much the faster, and the sparrow was in fact "a good second" throughout the chase. The sparrow is, of course, by no means a slow bird, and is often able to keep

up for some distance with a homing pigeon, which we know generally flies at about forty miles per hour. On passing the scene of the above-mentioned contest between swift and sparrow, a week after, I found the former in sole possession. Probably his very sharp claws had proved more than a match for the weapons of the sparrow.

CHAPTER VII

WITH INSECT WINGS

IF the sun were a creative spirit it could hardly produce more obvious or frequent effects than we now witness in summer. In the hottest time of the year each day brings into being a host of active forms of life, not of the higher kinds, but of insects and creeping things. Many of these ephemeral creatures are innocent of violence, but myriads are born only to catch and devour their fellows, and to search all blades of grass, and twigs and leaves, nay, every crevice, for victims. Nor is this war confined to the regions of air.

In the waters the engines of violence and death, so varied and numerous, so keen and ready, suggest the intensity of the strife in which they are employed. Here are scythes, suckers and pincers,

cruel claws and beaks that drain the life-juices of victims; creatures lithe and stealthy as serpents, with apparatus for descending or ascending in the water, the better to strike prey from below; things that can walk, swim, dive, and fly with equal facility, and all ready to kill. The unaided eye may number a multitude of them, but the microscope discovers a myriad more, all warring on each other, and revelling in gluttony.

It is amid the thick growth of plants on marshes, by sluggish streams meandering through ferns, that life seems most rapid in development and decay. In such a spot in July there is a continual murmuring of winged creatures—beetles, flies and others—all active and eager; and swifter than either, more fearless and beautiful, sails the great dragonfly. He darts above the swaying stems with gossamer wings rustling an accompaniment to the hum of innumerable droneflies—the death-messenger to all gnats and blight that would cross his course. So mobile, so sure in swooping, so free from apparent effort, he almost seems to be a spirit ordered to destroy all that would escape by flight from the

contest beneath, the endless, fatal battle of the brake.

At each moment the fortunes of the combatants are changed. A swallow snatches a thousand from the surface of the water; a shrike has seen the dragonfly, and overtaken him; and a sharp cry comes from a corner at the water's edge, where a little frog, watching for insects, has himself been watched by a snake. And meanwhile the sedge-birds sing in the sunshine, chattering, laughing as it were, joyously in the midst of this whirl of life. Yet they suddenly cease, for above them appears a sparrowhawk, circling, waiting for the chance of catching some little bird or a mouse. He surely has no fear? And yet sometimes he too must seek shelter in the thicket, when far, far aloft, a dark speck passing with even glide across the zenith reveals a stronger and fiercer bird—fortunately for him a much less common one—the lord of the English sky, the deadly peregrine.

But there is laughter as well as war in the animal world, the flutter of bright wings beside the gnashing of sharp teeth. There are creatures that pursue in play as well as those that track to

the death. There are toils to be undertaken for food and for the helpless young—progeny that will never be seen by the workers. Daily cleansing must be performed, and even the common flies and beetles have prolonged operations of the toilet! The spider repairs his torn web; moth and butterfly select with care the places for repose; the wasp, repeatedly driven from table sweets, returns at a risk she evidently appreciates to obtain a dainty for her little ones. None frets over the difficulty of existence, but each bravely fulfils its task.

The man who studies any of these things finds the middle of summer a busy time, for each day then brings forth a fresh troupe of interesting forms. The schoolboy starts his annual collection, which will probably be spoiled before the winter. Butterflies are generally the insects sought—and no wonder, for, pretty themselves, they are obtained by a chase in delightful surroundings. Therefore it is not strange that our rarer and more beautiful kinds are yearly becoming more difficult to obtain. The best excuse is that the collected insects are actually preserved to please their captors for years, when perhaps a few weeks, or a few days, would

have been the utmost limit of their life. And in winter, perchance in some grimy town, it is certainly pleasant to open a box or a drawer and find within an array of bright wings, gay as wildflowers, recalling the warmth and life of summer. This is pleasant enough, but deeper enjoyment may be obtained by quietly watching the insects when they are full of life and activity about their favourite flowers, and leaving them as found, still free and uninjured. Nor do we thus deny ourselves all scientific data, for there are other sources of information than those dependent on the infliction of death. A man's best museum is his mind, which he can store—not with dusty specimens recording the triumph of cupidity over kindness, but with memories of pleasant scenes, none the less enjoyable because kindly. And if it seems well for the sake of science to engulf in a deceptive green net some flaunting fairy all aglow with sunshine, and life, and energy ; if we witness without pity her poor struggle for freedom, administer a fatal nip, and pin her in the box, we have not only acquired what may be a fine specimen. There is something else come to us unbidden.

One day early in November, on the top rail of a shaded old gate, a lovely pale cricket, slender and fragile, and of a kind never before found there, was sitting. Golden leaves were falling from the great elm tree spreading above, blossoms had long since vanished, the birds had retired for the night, and not even the great black beetle was abroad. Sadly out of place seemed the dainty emerald-green insect in that gloomy scene. Her large gauzy wings were folded, the long slender antennæ, or horns, waved slowly, bending with the changing currents of chilly air. All around were the evidences of decay and death, but here life reigned in exquisite beauty. In warmer days she had lived in an airy home among the branches; now she had descended to a strange scene to fulfil the sacred mission of maternity by finding an asylum for her eggs. But a lover of such creatures was near. She began to wave her horns in scrutiny of the great dark object that had shut out the light. But her wings were too cold for flight. She could not escape. Then rough fingers seized her and crushed out her life, heeding not the wild gnashing of those delicate jaws, the last stroke of her elegant

springy legs, and their slow contraction in death, nor the final spread of those half-transparent wings. Was none at hand to rescue the victim, none to avenge the deed? The chill wind passed on, the leaves were still falling, nothing around had changed. But some one had acquired a sad memory as well as a good specimen. A vivid, indelible picture had been painted by that which we, in want of a better name, call conscience, but which is half a personality, half an emotion—half fact and half fancy—the angel of the heart, who with magic wand flashes unfading pictures where memory, freed from the chains of necessity, will pause for rest in the cooler avenues of thought. And if that pale, tired guest is pained and shocked by those records, it is not strange that she should chide the erring will.

So the dainty little cricket did not wholly die on that dark day. Her brittle body is crumbling to dust, useless; her offspring never saw the light; but in the corner of one poor human mind she yet sits on the old gate beneath the elm, waving her gossamer horns as though watching out the last hour of day. In all that scene the one bright spot—soon to be darkened.

"Poor insect, what a little day
Of sunny bliss is thine!
And yet thou spread'st thy light wings gay,
And bid'st them spreading shine.

Thou humm'st thy short and busy tune
Unmindful of the blast;
And careless while 'tis burning noon:
How short that noon has past!

A show'r would lay thy beauty low,
The dew of morning be
The torrent of thy overthrow,
Thy storm of destiny!

Then, insect, spread thy shining wing,
Hum on thy busy lay;
For man, like thee, has but his spring:
Like thine, it fades away."

CALCOTT'S *Glees.*

The quick killing of insects is not necessarily a matter involving much cruelty. We all know that a wasp's head may be cut off without preventing the activity of the wings, or spoiling the head's enjoyment of a sweetmeat.

One day I crushed a wasp, and seeing the head moving, I cut it off with a sharp knife, and placed it on a table. The tongue was moving, so a drop of honey and water was placed on it, and the jaws

then worked vigorously. The honey passed through the mouth, and out at the back of the head, to be again sucked up as before. The liquid was not absorbed by the hard surface of the table, and the rhythmical movements were continued for the space of two hours, and after the lapse of even three hours the head resumed this action when touched.

One would like to know that a wasp, when rolled helpless in a spider's web, or a spider found from home by a wasp, and having his legs bitten off one by one, has the same insensibility to pain that the insect's head exhibited on the table, but there is small evidence in support of such a wish.

Combativeness not only prevails among animals which can seriously hurt each other, but in those that cannot do so. At the same time it must be remembered that man himself is almost the only animal that fights for the mere love of fighting, and not for only some definite advantage. The butterflies are not innocent of pugnacity, some of them driving each other from favourite resorts. The males only seem to do this, and those of but few species. Are they clever enough to be jealous?

The "small skipper," a little bronze-coloured butterfly of July, is a most combative insect. In very warm weather, when its senses and powers are most acute and vigorous, it is quite furious, and I have watched one for a quarter of an hour at a time fighting with aggressors on its domain. The movements of the combatants were so rapid as almost to evade the sight. After each contest one of the insects—presumably the same one—returned to a particular leaf on a tangle of wild clematis to sun itself. Several other butterflies are almost as pugnacious as this.

Similarly, the common flies, when sunning on walls or on foliage, seem always eager to chase away other passing insects, and the hoverer flies, which poise themselves in mid-air over woodland paths, seem to adopt that position for the sole purpose of chasing anything else that may be flying near. Their senses must be very quick, for they never collide with other insects, nor strike against twigs or leaves.

Many insects, however, are possessed of faculties of a higher nature than those which merely enable them to avoid obstacles in the path. Butterflies,

for instance (to mention some of the least intelligent), learn the floral geography of their favourite resorts. I have seen a peacock butterfly go from point to point across a steep-sided valley, to the distance of a hundred and fifty yards at least, to visit a clump of flowers; and return, after a rest, to the former position. His flight was so direct that he must have known the exact spot where the journey would end; and though at first he must have found his way at the height of only a few yards above ground, he had sense enough to adopt the shorter route, though it led over the tops of trees growing in the bottom of the valley. A small telescope enabled me to follow the movements of this insect almost throughout the whole journey. After tasting the sweets of the hemp agrimony for awhile, for which he had made the journey, the butterfly fluttered up, and came sailing back to his old position on the sunnier side of the valley.

The peacock butterfly is not the only British one that is known to sometimes fly high in air; the much rarer "emperor" has the habit of soaring loftily; and I witnessed the same incident in

the common "tortoiseshell." Some years ago I hung a number of chrysalides of the last species in a garden, where they duly hatched, and plenty of flowers being near, the insects did not quit the spot, but stayed there all the autumn, hybernated, and reappeared the next spring. About noon on some of the quiet September days, when the garden starlings were soaring about for insects (as they do in sultry weather), one or more of the tortoiseshells would also rise, spreading their wings and sailing this way and that like the birds, and soaring even higher than they, until mere specks against the white revealed the insects. They would even pass clearly out of sight, and remain away for many minutes; but they never rose to this height unless the air was quite still; and they always returned from the sky in the same way, descending very slowly while flying in wide circles. They did not all soar at the same time, nor with equal frequency; one male was a particularly persistent soarer.

Why did they do it? Certainly not for food. Not to meet others, for the sexes do not seek each other till the spring. Could it be that these tiny creatures had any sense of the beauty of a basking

landscape, viewed from the wider ranges of upper air? And why did they never attempt a soaring flight when even a light breeze was blowing? Did these children of a month old know that a breeze might blow them away from the asters, marigolds, geraniums, and lobelias, and the clump of agrimony in the wild corner of the garden? Intelligence of this kind might well be expected to occur in creatures of so free a life as butterflies; for all animals exhibit most of it in the particular environment to which they are adapted. It is but natural, therefore, that some of the swifter butterflies should be able to avoid even the wide gape of the collector's net, and to remember it afterwards. But when caught within a greenhouse it is not strange that they should batter themselves against the transparent barrier, where—

> "the window proves
> A constant death; where, gloomily retired,
> The villain spider lives."

When afternoon sunshine begins to wane, the careless butterfly becomes deliberate, and selects with caution her perch for the night. Many seem

always to adopt the same kind of shelter. Many roost on the decayed flower heads of plants—not on the bright blossoms, where they would be conspicuous, but on the dead seed-heads, the colours of which approximate to those of the under surfaces of their wings. I have seen nine common "blues" asleep on the three seed-heads of one small plant; but I never saw three of them on a single flower. The wall butterfly sleeps in walls; and the under surface of the insect is of the colour of grey stone. "Peacocks" and "red admirals" roost under the ledges of banks, on dark stems of trees, or on twigs in very dark foliage. A peacock in a garden used to retire to the upper part of a thick cypress tree. Under the ledge of a certain bank I used to find every year a supply of these insects. One September a tortoiseshell butterfly used to come every fine evening to a certain office window, which was generally open, enter, and sleep on the glass. Every morning he was let out. One day he flitted around the room, and suddenly entered the crevice over books on a shelf. He did not come out, and, the place being very dry, it was thought that he might have died

from sheer lack of moisture; but the next spring he was found on a chair. He had evidently been accidentally crushed by the office-cleaner, just when emerging to enjoy the approaching spring.

CHAPTER VIII

A COTTESWOLD SUMMER BREEZE

WHEN the summer wind blows softly over the western hills, it seems to gather to itself, like the hungry bees, the sweetness of every flower, and to absorb the moist breath of every wood, so that it is permeated with all the odours of this garden of hills. The frequent westerly breeze has already been satiated with the aroma of the sea, having sported on the blue desert for long thousands of miles, rolling the waves onward, and sometimes tossing them aside as though in eagerness to reach our shores and lose itself amid the inland greenery. It has shaken the dew from its misty garments to refresh the thirsty fields. It has embraced the meadow elms — stalwart patriarchs on whom so many summers have

smiled—and they rustled a welcome. It has played with the quaking grasses, and whispered through the ripening corn. It has made the close-set rival wild-flowers kiss each other. And all the while it has been gathering to itself a burden of sweet odours, which not even the smoke and smell of half a dozen seaport towns have tainted. So vast it is, these ills are lost in it, like the muddy splashing of a child at the edge of a great river. The Cotteswolds lie in the full current of this life-giving sweet air, which flows almost without ceasing from remote distances across the breast of the Atlantic.

But the hills, receiving so much of this humic richness, give something in return. Even in the dead season, when fields are bare, the long green slopes exhale a faint yet exhilarating breath—a something which human perceptions are not able fully to appreciate, which evades deliberate investigation, yet again and again makes itself known. It is the very ghost of an aroma, yet one which inspires with ideas of a wealth of life and sweetness hidden somewhere within the combes, somewhere within the wide brown arms of the hills.

And if the bare land and dead woods of winter have this most subtle charm, how much more evident it is when the sun has reigned for long weeks the beneficent lord of the sky, tyrant only to the clouds! Then from the westward escarpments the breeze gathers the fragrance of the thyme and other hill-plants. It sweeps through the little valleys, and drinks up the breath of living vegetation and the humid reek of the deeper shades, where last year's leaves lie rotting on the ground, and tone, in their decay, the smell of the woods. The scent of the larches is lifted from the dense thickets, and blends with meadow air. Each herb or tree lends something to the pleasant summer breeze.

The weakened senses of the civilised, however, are probably only able to distinguish the strongest of these odours, in which respect the lower animals generally, and even some of the birds, are much more capable than ourselves. The dog sitting beside us on the hill and snuffing the wind can learn in this way many facts unknown to us. Our remote ancestors, perhaps, resting on some elevation to watch their solar deity setting in the

north-west, could probably enjoy much more than the mere view, and fully appreciate the hill airs.

Yet even we can distinguish and enjoy some of the subtle flavours of the summer breezes. We can detect the perfume of the thyme, yellow lady's slipper, and many other summer flowers. These make the air almost as richly sweet as that stealing over the sea from sub-tropical Madeira, and telling expectant voyagers (more surely than the guide books) that they are approaching a flowery land. On the ramparts of our western hills the turf is then starred with blossom. Some, like the spotted orchis, stand boldly against the weather. Others, shrinking close to mother earth, seem to open timorously, as though pleading to be spared the disaster of a careless tread. And some, again, raise a slender stem only strong enough to support the black and brown humble-bees whose ceaseless hum fills the air, as though it were all Nature's murmur of content. Many of the busy insects have to ascend a long slope to gain the high grounds; but the breeze may help them, and others have a habitation at the summit. In the little hollows with a mound at one side, where the

grass is longest (and especially if the ancient hill shrub, the juniper, is there) the bee builds a shelter for her brood in the very spot where, long years ago, the hill-loving Briton of those times cooked his simple fare for a brood of young barbarians, or chipped his costly bartered flints, and made ready to track the deer and beaver, or to fight the fierce Silures of Severn Valley.

In the woods the breeze is equally enriched. Who has not noticed under beech trees the fragrance of the fallen leaves—which in some spots are several feet in depth—pressed in successive layers that record past summers, yet merging imperceptibly into the black leaf mould? Who has passed through a larch wood in May and not rejoiced in the perfume? But it is not only from trees that these pleasures are derived. Many of the wild-flowers are even sweeter. The thyme affords a common instance; nor must we forget the scent of grass and moss forming the thin green vest of the hills. The honeysuckle is a well-known censer, but when wild it is not a free bloomer, and generally sways only a few clusters at one time above the hedge. Deep in the woods

and at their borders the pungent woodruff raises a pure white bloomhead—a little white face not craned on a languid stem for sunshine, but content to smile and fade in its native shades. This weed, allied to the tenacious duckweed, is sweet in life, though humble; and in death it yields up to the breeze an intense nutty perfume, so strong that if the plant be dried between woven fabrics this memory of summer will last for months, or even for years.

The woodruff is offspring of the shade, but the sun has as fair a child in many a glade. The thyme may scent the brown hills; but the wild marjoram is queen-plant of the wood clearings and rough, uncultivated banks. In some of the Cotteswold valleys its purplish blooms are so thick that at a distance they suggest the heather. Its odour is less powerful than that of the garden marjoram, but is sweeter, and flavours the air, when the wind is not too strong, in a way that seems good for the soul! It is generally an unobtrusive plant, not spreading its arms in untidy eagerness to seize on a favourite spot, but holding itself compactly, and winning its way

slowly, but permanently. Early in the year its clump of small round leaflets begins to grow, forming on many a bank, or at the brink of a quarry, a fresh green border to an overhanging edge. Here, year by year, the roots obtain a firmer grasp of the soil, which they afterwards support against the stress of weather and the ceaseless claim of gravity. The hollow beneath becomes a highway for little feet. The mice love such galleries, along which they can travel unseen from above. In summer the lizard may pass that way, perhaps delaying for a half-hour to bask at the edge of the track, or darting on some insect that would use the same devious road. In autumn the reptile may use the protection of the marjoram for his winter dormitory, which he will excavate laboriously, using only one forefoot at a time to scrape away the mould. The rattling scamper of mice, the wriggling gait of the lizard, and even the hasty rush of night-beetles, dislodge from time to time a few grains of sand, a few fragments of stone, and roll them down the slope; thus deepening the shade of the track, and rendering it more secure. The early spring butterflies

have basked on the overhanging edge; there the lizard has lain for long hours, gazing at the sun or dozing; and there, later on, the baby lizards, dark, agile, and restless, wandered through the marjoram and neighbouring plants. There the silent blind-worm has peered forth to see whether the summer shower had attracted the grey slug from its hiding-place. Under the projecting ledge, whence most soil has slipped, the gorgeous peacock butterfly found a safe retreat, and there, clinging to a dark root in the ceiling, he slept unnoticed by the scampering mice, and safe from shrew and mole. During the warmest sunny hours he has roamed the valley, passed from clump to clump of favourite flowers, sailed as high as the treetops, and glided lazily down in a long detour around a glade. But at the first sign of evening he returned to the selected retreat, and shut his splendid wings. There have I found and killed him, and spiked him, with pins, in all the narrow ferocity of a budding scientist. Now, when many years have passed, and the hosts of pretty creatures that were left in peace have blended into one pleasant recollection, these mute victims come sailing down

the vista of memory, to mock a pretended lover of Nature.

When springtime quickened every root and stem, and ruder plants spread lanky arms to gain the most of the golden rays, the wild marjoram also raised its head and dared to look at the sun. But it was not eager ; slowly if surely it spread its leafy hands and developed its offerings for bee and butterfly—its effort to be beautiful. It crowned each stalk with a deep-red cluster of buds, which opened to a purplish-pink. The blue butterfly loved to pause there, with wings coquettishly upraised. The little copper and gay vanessas, together with palpitating droneflies and many other summer insects, found refreshment on the fragrant clusters.

The pride of the year soon wanes, and the wild-flowers drop their petals ; but the wild marjoram, though losing every bright hue, withstands the storm, and its once gay flower-head yet retains a sweet aroma. It then can yield no food to any butterfly, yet several of the smaller sorts find the strong stem a convenient perch, and its colour so harmonises with their under surfaces that the

insects are unnoticeable. Perchance they have some instinctive knowledge of this, or it may be that they are able to enjoy, even with closed wings, the scent of the dead flower—the last breath of the summer.

CHAPTER IX

AMONG THE TOILERS

IN the human world, the strife between capital and labour, between the "haves" and the "have nots," is the natural consequence of private ownership and voluntary alienation of property. Labour, often too busy to think, but able to feel, argues from the standpoint of pressing emotion; and capital, well-fed and leisurely, of course, views the matter in the light of abstract reasoning. Labour, with untutored tongue, exclaims at the bare idea of a man being born rich or poor, according to the means of his parents and independently of his own mental or moral qualities. Capital answers the cry by an allusion to the advantages which the many have derived from

the enterprises of the few—and so on. But through all the strife the voice of Nature ceaselessly echoes, and despite frenzied invocations, her law operates without intermission.

The poor man must work. This should render him healthy and abstemious. His children also will labour, and thus will acquire the habit of industry, which is one of the first necessities for success in life.

A man born to wealth will very probably lead a comparatively idle life. He will hunt and shoot, but his easy brain will tend to lose its virility for commerce, and his ingenuous countenance will disdain the mask which so often proves more helpful than a steel helmet in olden battle—for him who would achieve a triumph in the open market. His children, courteous enough, will have a less keen appreciation of the value of money, and luxury and indulgence may mar them speedily.

But when the rich not only grind the poor more and more to the level of beasts of burden, but, by means of "rings" and "corners" actually rob them of the bare necessaries of life, it is not

strange that, denied all other redress, the poor seek safety in open violence.

Wealth entices all. In the fancy of the average poor labourer is a vision of perfect communism in which all share equally the profits of their industry. Sometimes the worker broods on this till his better nature and common sense are warped, and then we hear of strikes and intimidations, and worse troubles. After the violence has been suppressed by law, the rebel is mocked by famine. Yet such a man will often state many and plausible reasons in favour of "his rights," and will not unfrequently draw comparisons from the animal kingdom to support them. The fact that certain birds and insects live harmoniously in their communities, is a potent cause of Utopian dreams. Gregarious birds and quadrupeds seem to live without fear of their own kind. But theirs is only an "armed neutrality." Only amongst insects do we find what appears to be that complete self-abnegation which is the first necessity of communism. The bee does not labour for herself, and the prodigious efforts of the ant gain no rest and hardly any luxury for that minute

labourer. But all ants, and, speaking generally, all bees, labour. They seem to work voluntarily, and are not overlooked by a lazy employer. We must not hastily conclude, however, that they have no notion of the amount of work they respectively perform, or of leadership in executing it. The hive-bees kill their drones, but it is not alleged that they destroy old and useless workers. In Britain the weather speedily effects the removal of the decayed and ailing.

If human beings could exhibit that devotion to the good of the community which is noticeable in the ants and bees, then the law might be allowed a free hand in distributing the results of labour, and man might live in a vast commune. But there is one fundamental distinction between the human polity and those of the insects; the insects work for their brothers and sisters—we work for our children. And therein lies the great objection to human communes.

Malthus showed that misery was the only check to population, and that any race sure of its food tends to increase in numbers till food is scarce, when the struggle for life is renewed. Starvation-

point is the sea-level of human life. Man has conquered every other animal with which his interests conflict, but he refuses to rule over himself. He will not submit all matters to the decision of expert judges. He will not let them decide how much labour he can perform, and where and when; nor would he dream of allowing them to decide (as Malthus suggested) in what way the "unfit" should be eliminated.

In "the ants' republic and the realm of bees" there is apparently but little contention, and no fraud; the insects are, however, constituted for a virtuous temperament. They are like little children, whose only care is to look after the baby. In the hive is one mother; all the rest are her descendants, or the nurses of a preceding generation. In the ant-hill are several mothers, but the labours of the colony are performed by those who can never rear any young of their own. This accounts for the harmony in their homes. Throughout the animal world the nest is a cause of strife and combat, not only between species, but amongst the individuals of every race.

Some of the wasps have so far departed from

communal principles that they have each a separate home, laboriously constructed on a carefully chosen site. One of the most interesting is also one of the commonest—the mason-wasp, which may be seen from the beginning of May till the middle of August. It is much thinner and smaller than the common wasp, which it otherwise resembles, except that its black rings are rather wider, and its flight far less active. It is a true mason, and builds a home, not with vegetable fibres in the manner of the common wasp, but with stone and mortar, so strong as to withstand all the heat of summer and the winter rains. This toiler is provided with the usual weapon, but it is a peaceable insect, generally too much occupied with its own concerns to notice people. When collecting materials on a path, it may almost be stepped upon before rising; and if disturbed in its diligent search for caterpillars, it quietly flits away to another bush, and resumes its occupation.

When seen on a path, it might easily be mistaken for a fly, but on closer inspection it is seen to be gathering up a little lump of mud between the forelegs. The insect flies off with this load, which

is heavy enough to tax her energies, for it is as large as her head, and, of course, much heavier. Following, we see her alight on the face of a wall, the side of a house, corner of a window-ledge, or similar situation, but probably at no great distance, for she has sense enough to build near the spot whence the materials are obtained. She alights on what looks like a patch of mud on the wall. But this mud is her home; she has built it up gradually, and it contains her eggs and the food for the future grubs, which will not hatch out till her life's work is done, and her sting useless to protect them.

She may not watch them growing to maturity, as may the common wasp; but she may build their home; and this she does with great care and some skill. If the observer move cautiously the wasp will continue her labours, even when watched from the distance of a foot. She will slowly raise, bit by bit, the walls of a cell or tube of about two-thirds of an inch in depth. In doing this she seems to be directed by her own ideas, her genius. Precipitate in nothing, she appears to act with foresight and deliberation. The adult

insects are most plentiful towards the middle of June, but many are later in development, probably because they were reared in a cooler situation than the others, for the whole brood generally issues from its nest within the space of a week.

When flies, butterflies, and similarly thoughtless insects are hatched, they crawl out of their chrysalis skins, dry their wings, and fly away. But it is not so with the mason wasp. It appears that she must learn how her home was constructed, for she crawls over and examines every part of it before setting up an establishment of her own.

The female alone toils, and she labours ceaselessly. The site of a new nest is very carefully selected, and building operations are then commenced. The builder seems to know that the strength of her edifice will depend on the character of the materials used, for she tries many spots on the garden path before deciding where her quarry shall be excavated. She remembers the exact spot chosen, and returns to it time after time with unerring precision. She also seems to know where to find necessary liquid for moistening the mortar, which is generally obtained quickly

when needed. Each cell is made slightly larger than the builder. The walls are raised very slowly, each successive lump of mortar being patted and worked into the exactly appropriate position. And viewing this exercise of care and skill, these little pats and caresses of the pliant mortar, and the artificer's frequent surveys of the whole work, one is reminded of human forethought, human patience and skill. There is more than instinct in it; there are the perception and ingenuity that can discover and strengthen the weak places in the walls, and remedy accidents as they occur. A whole day often passes in the making of a single cell, and if this be completed before evening, the wasp sleeps in it with her head towards the opening, ready to defend it against all intruders. A cell having been completed and finally critically surveyed, the wasp proceeds to fill it with the small green larvæ or grubs which are so plentiful on fruit trees and common bushes. They are stung sufficiently to be paralysed but not killed, and are thrust helpless into the cell. When this is filled, an egg is laid among the grubs, and the chamber

is then sealed up. After a while the egg hatches into a grub, which devours his fellow-prisoners and, having finished them, changes into a chrysalis and finally into a wasp.

While toiling so busily, the wasp is of course subject to the ordinary accidents of insect life. A bird may snap her up from the path where she digs; and when seeking grubs she may die less quickly in the meshes of a spider; or a swallow may overtake her in flight. Then would the little house remain unfinished, to be ruined by a storm.

And she has other enemies. I found a nest of this wasp on a house in which I lived. The young duly emerged; and one of them continued the occupation of the nest for another season, while another one commenced a fresh abode not far off. The labours were duly completed, and the groups of cells sealed up securely. They withstood many storms, and no doubt all would have ended happily for the insects, had not the house-cleaners arrived and made sweeping changes. One of them afterwards told me that he had found some patches of dry mud in the angle of a

window-sill, and the mud was full of maggots. He wondered what sort of a grub lived on dry mud!

During six seasons another species of solitary wasp was observed by me in a garden. Its name was not ascertained; but only one of the insects appeared in a season, and it was too nice to kill. It was visible for about a month, and always flew off in the same direction with its prey; so probably the successive generations nested in the same place. It came for a small sunfly which visited the flowers of some common blue stocks. The wasp would come along unconcernedly and alight on some horizontal leaf, whence it could at once detect any passing insect. It always directly faced anything it wished to watch, and being very agile, it would be constantly turning from side to side in a quick and intelligent manner, watching the insect life around. When a sunfly passed, even at the distance of two feet, the wasp would rise slowly and steal after it, until the fly had settled on a flower. Then the wasp would stealthily approach it from the rearward until within four or five inches' distance; and then, after

poising for a moment as though to judge the distance correctly, would dart at it. The fly was generally too quick to be caught, but not always; and often wasp and fly fell together through the leaves and rolled on the ground. Once within the grasp of the wasp, there was no hope for the fly, which was soon borne off. The nest of this wasp was, of course, packed with these flies, in much the same way that the cells of the mason were filled with grubs.

The bee and the wasp may be artistic toilers, but the ant is the most laborious. In Britain we do not witness the greatest triumphs of formic genius; we have not the "harvester" which sows its own small fields, cultivates the grain, and reaps and stores it; we have not the "umbrella" ant which protects itself from the sun by means of a leaf held aloft; but the slave-maker has been seen here, with its soldiers capturing the lesser species destined to be slaves, and its domestic arrangements in full swing. I have not seen this species, but I have seen the common wood-ant (*F. rufa*) carrying off the black ant (*F. fusca*) alive in its mandibles—not singly, but scores of them with

these living burdens. And once I witnessed a battle of ants.

It was many years ago. The incident was one to be remembered. One Sunday afternoon, in the summer, a garden path was found to be partly covered with ants, some of them red and some black, and sometimes mixed in groups, but mostly in little companies all of one colour. A closer inspection revealed the fact that a battle was in progress between a nest of red ants and a nest of black ones. Chairs were requisitioned, and there, for an hour or more, we watched the strife. The red ants were somewhat longer than the black, but the latter were the more robust, and it seemed that there were more red maimed or dying, and a greater number of them than of the black being carried out of the fray. But the most amazing feature was the courage of the combatants. Each seemed to be a hero, ready to die without flinching. A single one would rush against ten or a dozen, to be overwhelmed in a moment ; but a great company of the same hue as the victim might try to rescue him, and then would ensue a mighty scrimmage for the carcase. Many were the gallant rescues per-

formed. And viewing it all, the utter indifference of surrounding animal life seemed a strange fact. It was the death struggle of the nests. The black were the victors, and from that day to this I have never seen more than a single red ant in that part of the garden, though black ants have always been abundant there.

CHAPTER X

AN AUGUST SONG

THE early autumnal months, quietest for birds, are noisiest for grasshoppers and crickets. In the sunniest corners of hedgerows, or deep in the matted undergrowth of thickets, these insects chirp merrily. The note of the grasshopper is known everywhere, and in many districts the short, sharp chirp of the hedge cricket (*Tham. cinereus*) may be heard in every thicket. Like other crickets, it must be cautiously approached if its song is to be closely observed. The chirp is a slight "tsit," given at intervals of a few seconds, and caused by a brief shuffling of the wing-cases over each other. The sound is really a double one, but sometimes it is a triple one. Another variation is caused by the wing-cases remaining slightly dis-

arranged after the chirp, causing the second sound to be slightly raised; and in these instances the following chirp is of the ordinary kind. Thus a kind of alternation of these two chirps may be maintained by one insect. It would be interesting to know whether any of these crickets prolongs the repetition to the extent of four or five sounds given in one cry. This would indicate an advance from the simple to the complex, in the same way that birds seem to have progressed in song.

The grasshopper, also, has a suggestive variation of "time" in song. One may count the number of sounds in the song of this insect, as one may number those in the rapid song of a bird, by reckoning every fourth sound; in this way the varying length of the insect's songs may be ascertained. But there are other variations. On hot days the insect sometimes produces slow, single sounds by moving the legs alternately; anon both legs may be vibrated rapidly at the same time, or they may be used together slowly. These slow movements are the more interesting because they seem to be so deliberate. We shall never know whether the original grasshoppers

chirped slowly at first, in the manner of the hedge cricket, and afterwards more quickly, for their pedigree is a long one, dating back to the coal period; but in the higher region of bird-song there is some evidence that a similar line of progression, by mere repetition, has been followed.

Grasshoppers having lived for so long a time on the earth, it is not surprising that their notes should be produced by the long limbs which have been the chief means whereby the creatures have escaped from enemies, nor that the sounds should be, in a measure, of the character of those caused by the insect rapidly traversing a dense growth of grass-stems. Similarly the rustling snake hisses, and the squirrel, which in retreating causes a violent swishing of little branches, has an alarm cry which may be perfectly imitated by swishing with a bare young hazel twig of a yard in length.

Like the reptile, another descendant from the hotter periods of the world, the grasshopper is keenly sensitive to warmth, and loves it. Towards the end of the afternoon it seeks the very warmest spot in its nook for basking out the day, and often

ascends a tree to the height of a few feet for the sake of sunshine. On a day in October one was watched throughout the last bright hours. It climbed gradually up the stem of a larch, taking advantage of all the warmest angles, in pursuit of the retreating sunshine. He remained there for a while after all humanly-perceptible heat from the setting sun had ceased; but when the orb disappeared the insect at once leapt down amongst some clematis, on through bright leaves, past thick grasses matted below, right into the driest and densest litter, in which he would lie during the night, safe from all enemies but mole and shrew, there to await the return of day and warmth.

But the real August song in our insect world is that of the green field cricket, or great green grasshopper (*Acrida viridissima*). Compared with the grasshopper's strain, this insect's song is that of a very nightingale among orthopterons. As large as a locust, coloured in gay green, with graceful limbs, and armed with a powerful biting apparatus, this creature need fear comparison or combat with but few British insects.

The loud and continued song or chirp of

this cricket (resembling that of the grasshopper warbler, or the noise caused by the winding of a fishing-reel) is noticeable when once the attention has been directed to it, although some persons have a difficulty in distinguishing it at all on account of its very high pitch. As might be expected, the female insects are much less noisy than the males. They may be at once recognised by the presence of the long horn-like tail or ovipositor.

If cautiously approached, the cricket may be taken in the hand. In hot weather, however, it is very active and readily takes wing, when it will sometimes fly to a considerable distance. Its usual mode of escape is by diving straight down through the shrub on which it may be perched and hiding in the herbage beneath.

Supposing the sound is heard from a hedgerow, it by no means follows that the singer will be readily found ; on the contrary, a person may pass close to it and yet never see it. By listening very intently, however, we may ascertain that the sound comes from a certain small area in the hedge or bush. Even then the insect may not be seen,

though right before the eyes, so closely do its tints accord with those of its habitat. Then the song may abruptly cease, but if the observer remain quite still it will probably be resumed at once; and then perhaps the very slight movement of the grey portions of the wing coverts will lead to the detection of the singer. He is quite close, and one might think it an easy matter to take him in the hand; but this is easier attained by strategy than by open violence. It will be seen that the creature's long horns are turned towards anything that excites his attention, and it is necessary to engage this in order to make an unperceived approach. One hand is slowly raised to a position about a half-yard above him, and the fingers are moved slowly. Soon both of the horns will be steadfastly pointed towards this object of interest, and then the other hand may be slowly brought under the twig on which he sits, and with a sudden movement he is taken. The legs must not be held, for he will gladly surrender them in order to gain liberty without them.

Old males, doubtless bachelors, sometimes linger until quite late in the season. Late one September

I found two of these still in song, though the strains were rather intermittent. Age had already enfeebled them. One, however, bit viciously when captured, and took within the clasp of his jaws quite a large piece of skin on his captor's hand, but he did no harm to it. The next day, in a glass cage, he behaved ferociously, springing on a large "cabbage-grub" and tearing great pieces out of its back. It was a rather dreadful scene, suggesting some of the tragedies of insect life in the hedge. The fat, helpless grub and the fierce cricket fell together to the floor, the captor panting visibly, but biting all the while. A few days later this cricket died, probably from thirst. The other, in a cage in a greenhouse, sang on several days, and slew many lesser creatures, but he soon grew silent. Placed on a rosebush in the open air he resumed his music, till silenced by colder weather.

In the chill October mornings, when the sun first scattered the mists, the old cricket would slowly crawl to the warmest position on the tree, sucking up the dew by the way, and finally arranging himself as compactly as possible in the attitude which assured of the most warmth; and

then he would fold his horns against his back and sleep. He soon became tame, and looked for his food—sugar and water, dead flies, and milk—with which he was fed from the end of a straw. But day by day he grew feebler; he jumped no more, the ends of his wings were fretted and dead, he breathed very rapidly when moving, and he never sang. Replaced in the greenhouse, he was lively for a time, but suddenly disappeared, probably having crawled into some dark corner to die.

Crickets and grasshoppers are highly interesting insects, with a great variety of apparatus for producing the different noises by which they are distinguished.

One of the most interesting of these creatures was observed in Western Canada, where it is common. It was a black grasshopper two inches long, which at rest looked exactly like a piece of black root, but in flight displayed a pair of large wings marked with emerald green, so that the thing then looked like a black and green butterfly. This insect never chirmed, but when flying it sometimes made a loud snapping noise, clearly audible at a distance of seventy to eighty yards.

One could not easily discover how this noise was made. At last, however, the long spiny legs were seen to be raised sideways and pressed against the hard wing-cases at the moment of the snapping. The flight alone was engrossing to watch—sometimes a glide, sometimes as devious as that of a scared butterfly, and it would be extended to a distance of a hundred yards or more.

One day, when a snapper was playing about the road in front of the house where I lived at Vancouver, a fowl thought to "put him in her crop" and chased him. The insect went off at speed, but so did the fowl, using her wings to help her along. The insect dodged up and down, but the fowl nearly had him ; and then he began snapping loudly. The fowl was confounded ; she stopped, shook her head, meditated for a few seconds, and turned away. So our black friend escaped.

We well knew that insect. When the sun peeped over the eastern mountains he would come to our verandah and bask on the warming boards. Often during the day would he go snapping by, or make little excursions over the shrubs in a vacant plot on the other side of the road. He soon

became tame, and would rest contentedly quite close to us until inclined to take a turn in the air. Another lived in a vacant plot in the middle of the town, whence he made aërial excursions along the streets at about the level of the roofs, snapping as he went, but always returning to the same green patch to alight. Often have I heard him passing a certain office window there, and looking out have seen him descend to one particular patch of grass, which he always chose to alight upon.

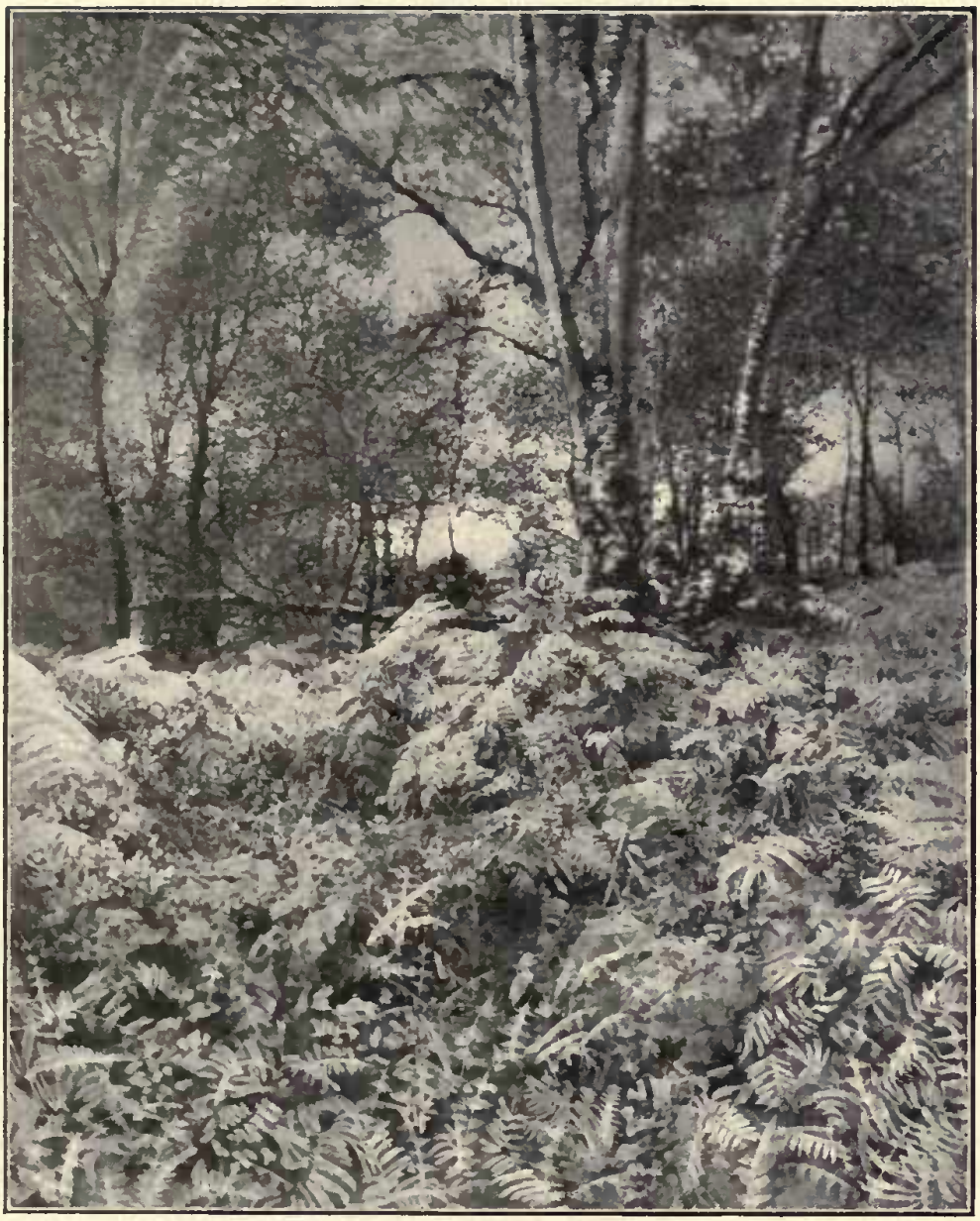
All the summer these insects could be seen, but when the damp of autumn came the chirping gradually ceased; old age had overtaken the chirpers, and death was near. At this time I killed one—a poor old fellow hardly able to hop—stuck him through with a pin, set his wings, and took him to South Kensington, where they said he was novel to the collection, and identified him as *Œdipoda sulphurea.*

In these days of acclimatisation one might do worse than import a few "snappers," and turn them down. Nothing could be prettier or more interesting than they would be when sailing around a garden, snapping cheerfully.

CHAPTER XI

SIGNS OF AUTUMN

ALONG the hedgerows, by brooks, and in woods, the first breath of autumn whispers a warning to the birds, and hushes them into silence. The approaching change of season seems to be anticipated even in July and early August, when the old cuckoos and the swifts set out for the South. Not long afterwards the swallows, warblers, and other feathered visitors to our woodlands prepare to follow, in search of that perpetual summer for which they are constituted. The swallows then rejoice audibly with their broods, twittering merrily, sometimes three or four together, especially at early morning, or when the sun shines out on a dull day. The warblers, however, are almost mute, save for the willow-wren, chiffchaff,



AUTUMN FERNS.

and an occasional blackcap. Though the willow-wren and chiffchaff do not often sing at this period, they are generally to be seen flitting restlessly from tree to tree, uttering plaintive call-notes, but all the while hunting for insects, and often scattering the clouds of gnats which at this season dance in the glades. The loud carols of the thrush and blackbird have long since ceased; and the silence of the woods is only broken by a startled jay or magpie, the tapping of a woodpecker, the occasional song of a robin, or, at a less distance, the harsh chirp of a cricket.

The redbreast does not at this season appear to pour forth his most passionate music. Perhaps he is not inspired by the immediate promise of a nest. When first he mounts the favourite perch in a tree near some thicket, he utters the abrupt and joyous rattling cry by which he is so readily distinguished from our other native birds; he flirts his tail and bobs merrily. But no voice replies. A few dead leaves rustle down from the tree. The gnats continue their dances in the humid shade. Drooping wild-flowers beneath are shedding tears of dew. His contemplative eye seems to notice these

appearances of decay; and when at last he sings, the notes are like trickling tears of sound; as though in singing he wept for the departing summer.

Although the birds are now less obtrusive than at earlier seasons of the year, the autumnal insects afford enjoyment to a rambler in the countryside. Vanessa butterflies fan gorgeous wings on the bloomheads of the agrimony, or soar on the drowsy air to the tree-tops. The dragon-fly glides through the glades, always hunting gnat and midge. But many of the smaller butterflies have lost their brilliancy; their holiday garments are fretted and torn; their sports are over; and their sole purpose is to provide for the continuation of their species. The female insects, guided by a sure and wonderful instinct, lay eggs on the plants which will afford sustenance to the future caterpillars, and which are often quite different from those which supplied the butterflies with food.

But day by day, as sunshine wanes, insects of all kinds become less apparent; consequently the birds preying on them must either migrate or

starve ; and therefore the hosts of summer migrants quit Britain for the South.

None but the swift and enduring can survive this ordeal of travel. A few frosts act as a sharp dismissal to the voyagers, and are fatal to those remaining insects that have not secreted themselves in warm retreats.

It is then that the poor humble-bee, fatigued by the labours of a few hours of sunshine, is overtaken by evening shadows before his task is half-finished, when he has only carried homeward one full burden. Conscious of failing strength, he clings to the decaying blossom where he made the last vain search for food, and gradually falls asleep. If roughly awakened, his weakness is plainly indicated in a feeble attempt to repel with raised feet the threatened attack. As night lowers, he becomes numbed by cold. The morrow may dawn brightly, and the sun shine clear in the sky, but in the time of darkness a few more leaves have fallen from the trees. The fading flowers glisten awhile in the warm rays ; and beneath one of them the humble-bee lies dead in the decaying herbage. He, too, has perished, like the leaf, in the silence of the

night; and the fiery spark of a laborious existence has been quenched.

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It is early morning, so early that the waning moon has risen but a few degrees above the horizon, where she rides through the fleecy clouds like a good ship on foamy waves. There is only light enough to reveal the dim outlines of the near hills, the shadowy woods and vacant sloping meadows. Overhead, thick mists are torn by a breeze, and hurried in a tumult. Through the gaps the stars are glimmering. Rain will fall to-day, for fleecy clouds portend bad weather; but the air is now dry and warm, and full of soft odours, which suggest that in the valley below are green fields and moist woods, and that away beyond lies the Atlantic.

The lightening of the eastern horizon is not the only indication of approaching day; far down in the valley, twinkling points of light show that human energy is preparing to conquer human toil. In the near farm the rooster sounds a spirited alarum to the drowsing owl. A whispered cry overhead betrays the flight of a thrush. What can

have driven the bird so early from his snug retreat in a thicket? Did the prowling stoat rustle near; or did an owl startle him? Probably neither. But last evening, when the mists began to rise, he left the accustomed nook, and, impelled by a powerful instinct, commenced a long migration over the pathless landscape, and directed his course, with the accuracy of a human navigator, to the South. It is strange indeed that a bird so essentially diurnal as a thrush should undertake a night-journey, guided only by the cries of its fellow-travellers, and in many cases not even by that, but by an instinct that lies dormant through the greater part of a year. This wanderer may have flown two or three hundred miles since sunset. What fatigues, what terrors, has he endured! How his heart must have throbbed when a great owl loomed large against the mist! How scared he must have been when on nearing a town he saw beneath him a galaxy of stars, more bright than those above, and there welled up the discordant roar of civilisation! But he has survived it all, and the grey light tells that day will soon bring safety and rest.

See him pause, turn aside slightly, and descend into the valley. Doubtless he hears the gurgling of the stream, and smells the odour of freshly turned furrows where the fat grub crawls disconsolate, and the wireworm, descending from an upturned clod, is exposed to view. Here a banquet is ready ; and near is a thicket containing a dessert of ripe berries, and thick shelter desirable for a morning rest. And there he may repose, perchance to dream of a home in the far North, or that the near robin's song is that of a rival defeated last spring.

But, a few moments earlier, a figure bearing a gun entered the wood. A loud report rings out ; the thicket roars an echo ; and a scared jay screeches in alarm. A cloud of feathers scatters around the thrush ; he struggles to rise higher, but vainly ; the half of one wing has been torn away ; a feeble cry ; and the bird has fallen dead. His clotted plumes record the triumph of human skill. The buoyant being has become lifeless animal matter. Are those wings never again to beat the air impetuously ? One is in fragments ; but the other will do well for the headgear of some kind

lady, who loves the pretty birds. That half-opened beak wanted a few crimson berries; but man has filled it with a redder stream. It is strange how clean are the feathers of this wanderer, except for these new stains; even the slender feet, unprotected from mud and dirt, are hardly soiled. That downy breast has often been smoothed daintily, now stained for the first time. Often has the little head been sheltered in the covert feathers of the wing. The woods have rung to the summer strain that told of the commencement of another day of toil and love and care; they echoed the passionate challenges of the slender beak—then haughtily upraised, and now shedding a sad stain upon the ground. Was it for this that two tender creatures reared their fledgling in a northern nest, showed him the wealth of the landscape, and taught him to perceive at a distance the evil glide of the falcon? Is this the end of his song—to satisfy with a juicy morsel the palate of his destroyer?

Daylight steals over the hills and down the valleys, penetrating the mist and revealing the bronzed tints of elms—glowing masses recalling

the summer memories of evening thunder-clouds. Now eastward glimmers a rosy glow. It spreads, brighter and fiercer as though a great fire raged beyond the horizon; and above it are flecks of gold. The nearer mists, hurrying across the sky, are still gloomy and dark; but yonder is the pathway of the sky, strewn with glory for the king of day, the sky itself is changing colour, and the clouds assume a hundred hues. Some are a dark and lurid red, as they might be evil ghosts discovered in crime and now retiring baffled; and in the farthest distance are fleecy golden fragments on a sea-green sky. The sun pierces the mists, gilds the elms, and kindles into tongues of flame the dew-tipped foliage of the hedge. Obviously his rays bring joy to the waking world. The lark is already aloft, trying to sing, learning and repeating many times his now brief passages of melody, and soaring higher and higher. Here come the laggard rooks; there a cloud of starlings; and farther up the sky a great flight of wood-pigeons passes onward.

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At all seasons of the year birds are most easily

observed at early morning or in the evening. In autumn, when the days seem to be shortening rapidly, birds generally go comparatively early to the places where they roost, probably because their food is plentiful and easily obtained, and the evening meal therefore not delayed. In making the journey to the place of rest, birds generally fly in a style which shows their identity. The finches fly in scattered companies, with an undulating and sparrow-like flight; starlings travel in closer array, and often in immense flocks, generally at a fair height, but, when there is any fear of attack by a hawk, at a very low elevation, barely at the level of the tops of the taller trees; and jackdaws, rooks, and crows travel in couples though many couples may be in one flock, and this suggests that already some of them have begun to "keep company" with each other, preparatory to mating in the spring. I commend this habit of flying in couples in autumn to the consideration of the believers in the "stag-rooks," or spring bachelors born in the preceding year.

When making choice of a lodgment for the

night the birds find their strength and activity as powerful in effect as money is among men ; and in practically all the important events in the lives of these subjects, these factors are respectively equally prominent. They decide very generally the destination of the most tasty and nourishing foods ; selection of habitat ; and whether the hunger of the heart can be satisfied.

At evening a quiet observer may witness many pleasing incidents in the roost-places of the birds—their careful reconnoitring and selection of the warmest nooks. Pugnacious kinds, as the house-sparrow, often fight before settling for the night, and especially so in summer. When roosting in great numbers in thickets the sparrow does not seem to fight at all, but to join in a jovial chorus before rest. This I often observed in a thicket near Eltham. The number of the sparrows was prodigious, running into thousands, and all slept quite exposed to the weather. They evidently believed that it was a case of "the more the merrier," for any sparrow passing near would arouse a chorus of call-notes bidding him descend ; and generally the invitation was accepted. Star-

lings and other garrulous species seem to argue emphatically at bedtime, and must be supposed to use very bad words to each other; but in this respect individuals appear to differ, some being comparatively amiable, and others cantankerous and pugnacious. Possibly, however, the complainers have been despoiled of accustomed perches by stronger companions. In the lodging-houses of the birds are no doorways nor first-floors: the ivied trees are innocent of social preferences; but there are snug corners betwixt the branches, undisturbed by storms, and inaccessible even to the cat; and here the stronger birds locate themselves. There are also treacherous twigs liable to be snapped by a gust, leaky roofs penetrated by rain and the drip of the trees, damp walls that breed fungi; and the birds appreciate these differences.

At first thought it seems strange that many birds which associate during the day, finding advantage in their mutual vigilance, such as sparrows, chaffinches, greenfinches, and buntings, should have separate roost-places. In severe weather in winter they are all occasionally found in ricks; but generally most of them separate.

Sparrows prefer buildings, or ricks, or in default of these they sleep like yellow-buntings in hedges and thickets, or even on the upper branches of trees: the last, however, only in towns. Chaffinches retire to shrubs below firs or to ivied boles of trees. Greenfinches prefer evergreen shrubs. Yellow buntings hide in the undergrowth of hedges. In every instance, except sometimes in the case of the sparrow, these birds secrete themselves amid surroundings tinted similarly to their own plumage. Their sleep-places are often at some distance from the places offering food; and their carefulness in selecting the former suggests some appreciation of the protective colouration. This was once very clearly indicated in a thrush.

It was winter, and we were accustomed to feed a large number of birds in the garden. Amongst others, a wounded thrush came for the food, and was seen there for some days. Once, when I went out to remove the food-tray, this bird was there, and ran for shelter up a bank and under a yew tree, whose branches, however, did not come within six feet of the ground. I was careful not to watch

the bird closely in order not to alarm it; but when lifting what I had come for I glanced at the bank, and was surprised not to see the bird, which I was sure had not run far up. Suddenly I saw it, certainly not more than three yards distant. The soil of the bank was rubbly, the turf having been worn by walking, with the result that it was greyish in parts, and there were many little hollows in it. In one of the hollows the thrush had attempted to secrete itself, not by turning its back to me but by facing me, and squatting down so that only its breast and the under part of the throat were visible—in fact, the head must have been held almost vertically, for none of the upper part could be seen at all. What could be seen of the bird closely resembled in colour the surrounding soil; and it was perfectly obvious that the bird had adopted this unusual attitude in order to conceal itself. So greatly was it incommoded by lack of room that its tail was pressed against the back of the hollow, and thus raised almost to a right angle with the lower part of the back. Seeing what the bird was doing I, of course, made a careful observation.

A female stonechat, also seen in winter, was in a dark hedge, where she was feeding contentedly, and often quitting it to seize some insect near. I was not very near her, and, having a telescope in hand, did not need to disturb the bird; but she persistently kept her back towards me. This was her most inconspicuous position, for there are markings on the breast of this bird, distinguishing her from the robin, which, in back-view, she closely resembles. For quite ten minutes I walked around and around this bird before I could catch a glimpse of her breast.

The yellow bunting does not choose his dormitory with deliberation, though careful to select a sheltered locality. Often he merely flits into the near hedge; but as often he will seek the nearest valley, flying high until over the chosen spot, and then descending headlong and darting into the shelter, to remain still and quiet for the remainder of the evening.

Far different are the manners of the chaffinches. Directly the shadows of evening fall on the firs these birds begin to arrive from the fields, their crops distended with the seeds of weeds, and their

crests erected, and the white marks on their wings showing like flecks of snow on the dusky branches. Alighting high on the trees, they utter their sharp cry, "fink," which has in many places given them a name. But on discovering a human intruder they adopt a different manner; they are uneasy, flit nearer to him, and turning from side to side, view him with each eye alternately, and, satisfied as to what he is and what his presence means, they fly quietly off to a safer retreat. Often quite a little company of them are in the same tree. It is alleged that the sexes separate during winter; and this is partially true. I have never seen large flocks of one sex; but I have often seen groups of from six to twelve of one sex, save, perhaps, one or two individuals of the opposite gender. On the Cotteswolds it seemed to me that the males frequented preferably the litter under beech trees, where they are not conspicuous, and that the females were more often seen about hedges and larch plantations.

The great sign of autumn, however, is the change in the colouring of the trees; this is the daily record, telling its own tale, and preaching its own

sermon for those who care to listen. It is the picture-writing of the Creator; and I question whether in any other part of the world that writing is more beautiful than in England. We have all heard of the autumnal glories of Canada, and I have seen somewhat of them, having lived a summer in the Dominion, and traversed the whole country in autumn when many of the trees were still splendid. The clearness of the Canadian air, not impaired by, say, a hundred miles' view, greatly enhances the vividness of the colouring. The hues are much brighter than those of our trees; but they are harder, less harmoniously blended, and less varied in a small area. Grander they may be; but not prettier. There you may see ten square miles of fir, ten square miles of birch, the same of maple; here you may see a half-dozen different kinds of thickets or woods, all within the space of one mile. Along the whole course of the Canadian Pacific Railway there was nothing to be seen more sweetly coloured than may be found in many a hilly district in Britain, where, in the valleys, are lofty elms, symmetrical, glowing golden; higher up the hills, thickets of

larch shading from buff to green ; higher yet, great beeches of a fiery red. Every little dell is ablaze with flaming leaves. Some of the elms are very palaces of beauty. And our autumn foliage seems to last the longer; indeed, our tints may be admired through nearly two months. The first victim to the change is the chestnut, which, with bare arms extended upward, seems to mutely appeal against the violence that disrobes her, first of all the wood.

Now the streams are swelled with rains, and murmur as they seem to toil in removing endless loads of dead and useless matter. Leaves, twigs, seeds, berries, dead and dying insects—all are seized by the whirling currents and are hurried along, down the falls, under the ferns, amongst loose boulders, into still pools, along dark channels, and again in broad daylight, in misty morning and at dewy eve—on they go, borne from the places where they grew, ever farther into the deepening waters, passing on into nothingness. Sometimes a branch, thick with twigs, falls athwart a rill, to form a temporary dam, ever increased by the addition of dead leaves and litter,

which pack the interstices until the weight of accumulating water pushes aside the obstacle and clears the course. And then, with a roar, down rush the pent waters, as though rejoicing in new-found liberty; heedless of aught else. The music of the stream does not change, though it tells of the passing of a fading leaf, or the corpse of a drowned rodent.

But though the birds have mostly gone, though the greenery of summer is no more, the woods have still their charm, they are rich in odours—not of summer flowers, but with the aroma of decaying leaves, the rustling swathes under beeches, grey carpets below larches, the scent of dying herbs, and, sweeter than all, the nutty perfume of the woodruff. And this continues though the wind blows colder, the sun shines fainter; it lasts when the remnants of summer beauty have vanished, on into the long night of winter.

Each falling leaf is itself a record of summer, and one easy to read. The life of a plant, even the development of each of its members, is full of variety, full of peril. Many are its enemies. Often wounded, it heals itself. Each tiny film in

the emerald ceiling of the thicket has had a long life-history, though limited to a few months of sun and rain. Without the joys or sorrows of animals, it has been quickened by sunshine; the sap has coursed through its veins; and the microphone has enabled us to detect the tinkling and rippling of the currents in its fibrous courses. Perhaps the tiny gnat, which we see without interest and crush without thought, may be able to hear this music, and enjoy its rhythmical vibration. Each bronzing film of autumn has had experiences akin to those of many a higher organism. Nature seemed to herald its birth; she is silent at its death. When May first smiled the young leaves pressed against the protecting sheath of the bud; at last the barriers yielded, and the world was around them. The sun invigorated them, and their powers were increased. They expanded and spread little hands to the blaze, sails to the breeze; and the vital tides surged through their veins. Immovable, they not the less traversed currents of soft air rich from field and forest. The birds sang among them; rain refreshed them; clouds shielded them from the

fierceness of the sun. The green warblers were their nurses, singing among them, and removing the noxious caterpillars. But with the advance of spring the enemies became more numerous. Infinite in number and variety, armed with keen weapons, they rushed upon the leaf, bored it through and through, and gnawed their way about its tissues. It could offer only a passive resistance. Slowly but surely the fibres lost vitality. The first frost completed the ruin ; and now, when the woods are silent, and all the merry warblers are gone, when mists lie dense and all bright insects have vanished, mother earth recalls her rosy children from the treetops. Death severs the leaf, and the slow breeze lowers it gently to the ground. And through the silence the robin sings its requiem. The wind lifts the lifeless fragments and lays them quietly in the shade; and the stream murmurs a dirge as it bears them on its bosom, in a long procession, to their bourne, carrying them tenderly over the boulders to a grave beneath the weeping sedges on the sandbanks.

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Pleased as we all are by the rich hues of trees in

autumn, our pleasure seems more a matter of cultivation than of instinct. We cultivate the sense of beauty and rejoice in it. But the trees not only please the optic nerve, they suggest attractive trains of thought. With their gnarled stems firmly set in the ground, they tower above lesser vegetation, each one the living result of inherited tendencies to grow and rise and spread in the sunshine. The girdling armature of bark, seeming harsh and rough, conceals and guards the delicate machinery of life and growth. It aids in the contest with enemies, and nullifies the chill of winter. Harsh and rough to the warring world, it enfolds that which at a safer elevation spreads a palace of greenery. Were the rind soft and yielding the tree would probably soon die. But, growing upward in the light, the tree must also dig downward in the dark for the wealth of nourishment by which it is sustained. As though intelligent, it thrusts its rootlets, tender as they are, through the dank mould, seeking always those particles which are the first necessity. And in this search it is in active competition with other vegetable growths, seeking, striving, gathering up the

treasures; thus are the slow powers of the root engaged.

In autumn, however, the trees show a greater glory than that of mere colour, though it be ever so vivid. In the beech woods, and beneath stout oaks, though no breeze stir, an occasional sharp sound is heard—the light patter of falling kernels, which are scattered everywhere beneath the trees. Down from the ash and sycamore spin vaned fruitlets singly. The yew is starred with red berries, beloved of thrush and blackbird. The hoary crest of the wild clematis is a similar record which the bullfinch and squirrel will read when the downy fluff has been silvered by sunshine.

Though no tree can ensure the safety of its fruit, each makes some provision for this purpose. Beech and oak give firm shells to their berries, which, smooth and heavy, are suited to work their way downward among wind-swept leaves and herbage. Ash and maple yield to the breeze their vaned seeds. The yew bribes with a drop of sweet red juice the bird which will carry its berry in the crop—a vehicle not hurtful to the burden.

Were these means of transport and protection wholly effectual, did every berry find its billet in the ground, the result would be such a thick growth of young trees that they would crush each other out of existence. But in the air and on the ground are many creatures awaiting the *largesse* of the trees. The squirrel and fieldmouse fill hidden storehouses with mast and other kernels; swine and pigeons fatten on the acorns. But although so many seeds are thus destroyed, there remain enough to carpet the ground, next year, with the green of seedling trees. The waste of these must be great, for of all the thousands which each large tree brings annually into existence, only one here and there, at long intervals of time, attains even the dimensions of a shrub. In the contest of trees the weak are obstructed by the stronger, and fade and die. The plants survive as species mainly by this waste of unfit life.

An analogous contest is waged throughout the animal world, and it is useless for us to mourn the fact or to seek to alter it. Variation and death are twin forces which mould the active creation. The contest is so close that only the very

strongest or most "fit" survive. Thus Nature, by an enormous waste of life, makes life strong and enduring and virile. Man, of course, knows better than Nature in these matters; he must prevent, so far as is possible, the elimination of his own "unfit" ones; nay, he must allow them to live and perpetuate themselves and infect and strive with, and perchance supplant, his healthiest, or finally to yield to the slow attack of disease or the misery of starvation.

He who has seen the strong man bowed by a lingering fatal disease, and heard his wish that the slow torture might be speedily ended by artificial means, must wonder for how long our customary cruel mercies are to be inflicted on the hopeless sick, when a few short years are all that the most hopeful and strong can anticipate for himself.

Our "fit" ones, again, those who are so greatly endowed with this world's goods that their descendants may live in comfort and spread over the earth, are not necessarily of the highest types, though the victory is theirs. They may even lack the wild beast's love for its offspring, and, conversely, there are always passing to oblivion a

great number of human beings—strong and symmetrical like stately trees, but trees in whose shade are no slender stems. There are kindly human voices that fade like those of passing birds, and are never renewed in the plaint of infancy.

But while so many people live singly because they have not the means to otherwise maintain a certain social position, so long will the future of the human family be left in the control of the bad and careless, born and bred in a city vortex of vice and misery, or in a country sty, whence they are pressed by sheer force of numbers to crowd the outer world and take the place of worthier men. For how many more generations will people devote themselves to snobbery, even to the extent of physical extinction? And what is their reward? Nothingness.

The starling on the housetop knows a wiser scheme. He would say that every inch of this fair world is worth fighting for. And this is the message of the trees. Where man seeks to improve on Nature and to do away with the combat of numbers and vital selection, Nature laughs at him, enervates him, and wipes him from her pic-

ture. Strife and stress are the necessary nurses of the human race ; the battlefield is its cradle. But the contest might be waged without cruelty and without fraud. We cannot all of us, however, choose our weapons, and claim pen or cap or sword for our own. Some must be armed with pick and shovel, and often from these the ultimate victors are derived. Not at once ; for it takes some generations of toil and honesty to harden the muscles and the brain to endure the thought stretches of business, and to provide the energy for great enterprises. Similarly, the natural effect of ease, in lowering the physical and mental powers, may not be immediately apparent. It may be delayed through many generations ; but it comes at last.

The man who has made a million pounds cannot effect a miracle. The gold may not be destroyed or lost, but the sons of the owner, assured of a competence, will probably prefer sport to business ; at any rate they will be less keen than their father to get money. Sooner or later their descendants will be of the type which is quick to spend but slow to earn ; and then Nature will use the goad of necessity to teach her truths.

But when the millionaire leaves no child, Nature condemns him and wipes him out. And even though, moved by pity, he endow a charity school, he thereby only provides rivals for his own kith

and class. The lords of creation, the only thinking animals, follow strange thoughts when, for fear that their possible children would have to live by using the muscles which should be a source of sincere pride, they choose a mode of life which is

otherwise unknown except in creatures physically defective. Therefore is it the more desirable that we should take note of the autumnal patter of falling kernels, which tells of provision for the longer reign of certain species in their congenial habitats.

CHAPTER XII

WINTRY DAYS

DURING the colder and wetter months the barely traceable tracks through the woods (in summer the pleasantest of paths) do not afford good walking, and only the woodman, keeper, and poacher traverse them. Ordinary persons shun the sticky clays over which so many of these summer highways run; they like not the fresh growth of briar and bramble on either side, now hardened, spread as though in eagerness towards the pedestrian, with spikes and talons ready to pierce his ankles and hook his clothes. The fallen leaves are too heavy to rustle in the light breeze. They often hide some slanting root, wet and slippery, which rejects the touch of a boot, and causes the walker an anxious moment, if not a fall.

There seems to be but little life to attract the lover of Nature along one of these uncomfortable paths. Sometimes a magpie, disturbed in fancied security, utters a shaking alarm-cry; farther off a jay may screech unseen; sometimes a wood-pigeon passes overhead; a few gnats dance in the shade; the stream murmurs; and that is all.

Yet we are in a city of little quadrupeds—mice. The dead grass lying close and dense beside the path, like swathes of hay, conceals the highways and byeways of a numerous population. Part the matted grasses, and you discover mouse-paths leading in every direction, along which the mice and voles can run without being seen by their arch-enemy the owl. On inspection these covered roads are found to be wonderfully clean, and it is obvious that the mice and voles practice what is certainly an elementary system of sanitation. Their behaviour in a cage suggests the same conclusion. The sites of the nests are carefully chosen. In summer a nest can generally be found in a dense growth of wayside grasses, but the hoards of nuts, beechmast, and other edible treasures are less easily discovered.

A WINTRY DAY.

The manners of these animals when encaged have often been recorded; it is, however, from those of wild animals that the student should draw his inferences, and this usually requires much patience. But there is a subtle charm in the wilderness which is an additional inducement to study it. The meadow vole is vivacious, even in a cage, but much more interesting when wild. In autumn he hunts for nuts beneath the hedge, and finding one, seizes it by the small end, and bears it away in haste, craning his head above the fallen leaves. So keen is he for this food that he will readily enter a trap which has been rubbed with the kernel of a hazel nut and is baited with the same fruit. He will even take a nut from the hand within two days after capture. In obtaining the seeds of small grasses he sometimes employs a stratagem. Severing the stem at its base in the midst of dead grass, he pulls it down and aside, perhaps along one of the corridors. He again severs the stalk, which slants, trembles, and sinks in successive jerks until the head alone is seen. This soon follows the stem, being dragged out of sight backwards. The mouse is thus hidden all the time.

The easiest way of discovering a vole is to walk along some quiet road which is bordered by grassy banks, and to listen for a sound of the animal amongst the herbage, and the instant that this is heard stand still, and then wait. The vole, accustomed to the passing of carts and people, will soon conclude that the danger is gone, and will resume his occupation. Sometimes he will come out on an open space, so that his little black eyes may be seen when he snuffs the air and wonders whether all is well.

In some of the open spaces amongst the dead leaves are little mounds of fresh mould—too small for the work of a mole, and from the fineness of the particles, evidently the work of a lesser animal. They are probably the output of the long-tailed fieldmouse, one of the prettiest, and perhaps the commonest, of British mammals. It is of a blackish tawny colour above, with milk-white breast, large eyes and ears, and is intensely agile.

It is strange that while so many children are encouraged to keep the noisome fancy mice so often kept as pets, this prettier and more cleanly

quadruped should be left undisturbed in every hedge. And yet in view of the fate of most "pets," no one familiar with the "jumping mouse" will regret the neglect.

Only the other day I carried out to the garden the body of one of these mice which had been a captive for some time. The burial was brief; one thrust of the spade, and the grave was ready to close upon one more sad history of a "pet."

More than two years have flown since I received an invitation to take some native animals to a provincial flower-show, and with that end in view, captured a fine long-tailed fieldmouse. Entrapped on his familiar pathway under the grasses on a wayside bank, he made a rapid transit from populous hedgerow to solitary cage. Vain was all the frenzied clutching and biting at the wires of the trap and cage, even though the terrors of artificial light gave force to his efforts. But the first experience of captivity could hardly have been so terrifying as the crowd around his cage at the show, when he cowered in a corner, panting, yet evidently fearful lest even this slight movement might attract the attention of the enemies. That

night, however, he took some filberts from my hand, though not without signs of alarm, little starts and recoils, and sniffs at the proffered fruit, his large ears meanwhile turning this way and that to catch the faintest sound of danger, and his bright eyes eagerly scanning his captor.

The cage, more than a foot each way, and light with glass and wirework, was supplied not only with a variety of foods, but also with a wheel made on the principle of a continuous ladder, in which the mouse could run to any extent. He would make this spin for a minute or more without a rest. Sometimes he must have run in it to the extent of a quarter of a mile in a night. Being kept in my bedroom he could often be heard in the night. After being kept for a month he was unsuited to resume a wild life, for some other mouse, now master of his resort, would have killed him. In the garden he would have been the prey of a cat. So it was best to keep him in the cage. He gave no trouble. An ounce of corn would support him for many days, and he kept his cage very clean.

When much pleased by anything he jumped

about, and would skip all around the cage with a particularly nice morsel before taking it to the corner in which, true to instinct, he stored his provisions and covered them with sawdust. The habit of accumulating food for future use is prominent in some rodents, and though now instinctive, it has probably owed its origin to the unequal distribution of foods, both in point of time and place. Also the storing is of use in that it permits of the hard coverings of seeds and berries being softened by moisture, the site of the store being generally somewhat damp.

Perhaps this softening of food, and the habit of living in burrows in soft mould—in the making of which the teeth are not used—may account for the fact that the long-tailed fieldmouse is not a gnawing animal—as the term is generally considered, at least, it never gnaws its cage. In this, as in some other desirable features, it contrasts with the common pet fancy mice.

The stores of the wild mouse are often at some distance from the place where the food is found. One such store (apparently that of a mouse) containing a pint of acorns, was recently discovered

fifty yards from the oak-tree whence the fruit had been carried. In a populated hedge the store would be liable to frequent depredations, and the desirability of a site at a distance is therefore apparent, but the labour of carrying acorns to it must be great and dangerous. When carrying food this mouse seems to advance mainly by leaping, in which respect it differs from the meadow vole; the latter holds the head high when carrying food, but otherwise runs in the ordinary way.

There is doubtless much variety and excitement in the life of a hedge-mouse. Many other mice are met and fought, or played with, about the banks. The frequent alarm of enemies, excavation of burrows, preparation of the nest, the search for food—not to mention the constant labour of cleansing—these must make the hedgerow a scene of much interest and activity for the little quadrupeds which live beneath its shelter. When one of these is shut up in a cage, the whole course of its life is altered.

Thus it was with my pet mouse. There being difficulties in the way of his remaining in the house, he was placed elsewhere. He was left

alone for days together, yet, when disturbed, he was as lively as ever, and had a long run in the wheel. Time passed, and a disease not uncommon in mice appeared in the form of a swelling on his neck; but this did not interfere with his activity, and he was as bright and ate as much as formerly. Corn of various kinds, apple, nuts, and brown bread were welcomed. But the trouble increased, and the question arose whether it would be more merciful to kill him than to prolong his lonely and painful life. Yet when he could still relish food, and leap about the cage like a child let out for a holiday, why kill him? The disfigurement increased, and necessitated the enlarging of the opening into the nest-box. The mouse understood this operation, and skipped about his cage after every inspection of what was being done. One day he was very quiet, having evidently hurt the diseased spot; but next morning he was lively, and had a long run in the wheel. Then he began to look rough and untidy, for the disease prevented him from smoothing his fur, nevertheless he jumped about after finding a nut.

A few days later he was dead. The disease

had extended to the head. The creature was shrunken. The formerly neat tawny-and-white fur was rough and matted, but the delicate feet were as clean as when he was taken from the hedge; and as he lay dead in his lonely nest (so carefully made) with the last flicker of a wretched life gone out, with paws clenched, and the large eyes tightly closed, as though by a fatal spasm, he forcibly suggested the difference between the fate that man had imposed on him, and that which he would have otherwise enjoyed. True, in his cage were nice foods such as the dwellers in the wilderness know not; yet the solitary prison, with dry sawdust and monotonous wheel, was but a miserable exchange for the peopled paths beneath the odorous herbage of the hedge.

A sight of that little creature recalled a far different scene of animal life. On one of the last evenings of May a nightingale was commencing his song. He was at the side of a road through a thicket, in which many other birds were singing. One by one the voices ceased, for daylight was fading, and the first hush of evening was approaching. Suddenly a long-tailed fieldmouse emerged

MY MOUSE, *BEFORE* I CAUGHT HIM.

from the grass on the far side of the road, rubbed his eyes for a moment, looked this way and that, and then crossed the road by a succession of great leaps. Arrived at the other side, he paused before a thick growth of grass which offered no passage. He did not notice the human observer not more than six feet distant; but he understood the difficulty of the situation, and with a bound nearly a foot high, he sprang right into the midst of the grass; with another effort he gained the dry ditch, and sped along it out of sight.

That little episode was more pleasing to remember than all the tameness of a captive. What though a hawk or an owl might have seen that rash venture across the road, and have swooped? They would have been swift if sure; and so would stoat or weasel. Man, with cruel prison, was not less fatal. He merely delayed the final moment—with misery.

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Above the mouse-haunted grasses stood the wraith of an autumn plant—a white brittle stem supporting dry relics of a blossom. Now it has fallen, soon to be crushed into the mire. Yet this

wreck has bloomed in sunshine, amid thick grasses that jostled, as though conversing, in the breeze. The dry and brittle seedhead, falling in fragments to the ground, has supported radiant petals and exhaled sweet odours; laid bare its heart to the early sun; opened wide its stores of sweets to attract the passing insects; basked through the bright hours; and retired within itself when evening chills foretold the night. At morning, all fresh with dew, it was again wooed by the bright rays. Apparently insensible, it was not the less receptive. The flower entices the insect, and the result of the temptation is found in the scattered seeds of autumn. In the growth of a plant, and the slowly explanding glories of a flower, are analogies to the impulses which lead animals afar in search of a mate. In one sense practically every flower is a passion-flower. She also appreciates the sunshine, grows towards it, turns her face to it, and is affected by the amount of light and heat thus obtained. She attracts the beetle and moth, butterfly and bee, and promises them a feast. But she does not quickly perceive their presence; she cannot spread wider her tracery to bring down the passing butter-

fly; nor suddenly moderate her offerings. But we know that the completion of her purpose depends on the presence of animal life. By the varied forms of insects Nature embellishes and completes the loves of the wild-flowers. Insects are her high-priests, who instinctively perform their functions. Their temples extend beyond horizons, on open hillsides where larks worship the sun, on lonely heaths where quaking-grasses dance to the music of the harebells, or in long woodland aisles consecrated by the sylvan choir whose strains blend in concordant song—ever changing, yet ever the same, throughout each summer day, rising and falling like ocean waves, and fading with the ebb of light.

But the flower was not formed only to be beautiful. Those hard, dry phyllaries of the involucre —arms of the cup in which the blossom rests— were developed for a higher purpose than merely to support gaudy petals. They protected the bud from the storm, warded off the hail, and bore without injury the pelting rain. And when the petals had bloomed and faded, these more enduring arms enfolded the heart of the flower, and

shielded the seedlets, as they had sheltered the bud, until the brood might be entrusted to the winds, which would carry them abroad in the world. But precautions were taken for that journey. The parent plant became exhausted, withered and dead, in supplying the means of transit. And when at last the barriers were forced aside, the emigrant seeds were already provided with wide sails, fans, or other means of travel. Long months have passed since the seeds were scattered, but this tattered relic, dead and brittle, and soon to be trampled into fragments, has withstood the weather, the record of an atom of life which fulfilled its destiny.

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Although the cold season deprives us of the presence of numerous races of animals, the powers of Nature are evident in the weather, in the rain, snow and mist. The first maps the landscape in magic whiteness ; and a distant rainstorm, viewed from an eminence, is not unbeautiful. But who will champion the clammy fog? The noisome cloud of the city cannot be defended ; but the grey, transparent veil thrown over meadow trees,

has its charms; and so have the waveless, airy lakes of snowy white, whose shores, viewed from an upland, extend high along the pastures, while from the depths ascend the sounds of waking day, barking of dogs, lowing of kine, and monotone of the sheep-bell.

Towards evening in winter, when the air is still, mist is seen not only rising from the water, but also from moist land. On the field its development is hardly discernible, but streams and ponds sometimes "steam" almost as though they boiled. At that time, little columns of mist, a few feet in height, arise like some sort of spectres from the water. They are numberless. Often still, they sometimes whirl in the eddies of slow air-currents, and pass in a sad procession along their silent highway, or drift across the shore. The evaporation from waterfalls is more rapid, and sometimes forms columns of white mist, which are lifted by the upward current of air warmed by the water. Where ponds are surrounded by higher ground or by hills, the mist often accumulates and forms a lake above a lake. Should a wind arise, the mists generally vanish; and this especially occurs when

the breeze is from a warm quarter. The fog is then absorbed as well as scattered. But when the cold increases, and all is still, fog is developed throughout the night, and the first grey light of dawn may reveal a landscape changed almost beyond recognition. The hills and uplands have their usual appearance; but the farm in the hollow has vanished; the ten-acre spinney cannot be traced; the sound of the waterfall at the mill can still be heard; but there is a white vaporous mass swelling high above the spot, as though the buildings had been burnt but still smouldered. Yet some of the highest trees rear their crests above the shroud, which engulfs all else around them.

The morning mist, however, is generally the forerunner of a fine day. The sun will dissolve these soft shades, and retake possession of his sheltered nooks and basking fields. And, glad as we are for the humid cloud to vanish, we must yet admit that this cold, clammy, opaque screen has its charm. There is something beyond our ken in this all-embracing and mysterious shade, silent save for the drip it sheds from the trees.

From a hilltop the life and death of the mist

can best be seen. As daylight increases, the white waste becomes more distinct. A golden glimmer spreads on the eastern horizon. At first it seems to tremble, as though afraid ; but soon the brightness spreads from hill to hill, and reveals vast lakes of mist in the valleys, and narrower but denser rolls lying along the steep hollows, like limbs of some mighty spirit asleep in the depths, and stretched in careless security from combe to combe, lulled by the murmurs of the streams.

The blaze increases ; and the dew-tipped hedge gives answering gleams. The upland birds welcome the brightness ; and the lark begins to sing. The fields are warming, save where the impenetrable grey shadow reigns. Still brighter glow the beams. As though angry, they seem to dissolve the inert obstructive masses. Trees emerge from the obscurity ; but they have no golden leaves to shed in a lavish *largesse* athwart the slanting rays. Farther afield they still loom as shapeless, gloomy masses.

The retreat begins. From narrow gorges among the hills glide sinuous lengths of dense fog, monsters of miasma, driven forth by the sun, and

stealing away to deeper seclusion in a wider vale. Here are little fluffy bits of fog creeping up the slopes—skirmishers from the great host of vapoury shapes which even now are in motion and surge

THE RETREATING MIST.
(A Scene on Snowdon.)

higher and higher from their silent resting-place. Over yon hill they seem to rise as with uplifted arms, hastening from the clear rays. In wild disorder they are rent against the woods that crown the slope. Finally they flee across the sky. Now

even the dense array that held the wide vale is shattered. Field after field, wood beyond wood, are captured by the dazzling weapons of the sun : the mob of mists is driven from its most secure retreats, the waterfalls and shady dells, and hastens across the sky and into the dark distance of the horizon.

Now the lowliest sun-worshippers appear from arboreal retreats and mural crevices. Throughout every warm day, in winter as well as in summer, animals may be seen which appear to rejoice in sunlight as though they actually fed on warmth. And when we remember the things of summer that have the same joy—the singing bird, basking lizard, and hovering fly—it is not strange that these winter creatures should love the sun—the god of the day, which primeval man worshipped ; the unchanging fire, lord of the elements, judge of the clouds, illuminator of dark places, whose swift messengers crown the brief waves with gold, and with a touch paint all the countryside in lovely hues. No wonder that the trees spread their young leaves, like hands, towards him, or that numberless blossoms follow with upturned faces

his lofty course, and fold their petals when he is gone. It was his warm glow that awoke to life the dead things of the winter. It was his presence in the northern sky that led a host of pilgrim migrants up the world to worship in the green temples of our woods. It was the fierce heat of his steepest rays that fed the fury of the battle which seethed in every meadow and by each brook; and though now these things are of the past, we know that, whatever our own fate may be, the coming year will witness them again in all their infinite variety, in all their beauty, as the tide of life wells up to the flood, or ebbs away.

THE END.

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